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ABSTRACT

This document contains a wide assortment of papers and promotional materials concerning the Big Sky Telegraph, a Montana-based telecommunications network serving rural economic development organizations. Funded by the US West Foundation and Western Montana College, Big Sky was created to stimulate grassroots innovation in rural education, community services, economic development, and telecommunications. According to the plan, educators and individuals in 104 communities received free training and modems to gain access to distant resources and explore new strategies for development. Among other things, the system was used to offer online college courses, to establish a network among state women's centers, and to teach communications skills to aspiring entrepreneurs. Separate papers discuss the implications of telecommunications for rural people. The following are some of the titles: "Economic Development in Rural Communities"; "Rural Health Networking"; "The Grassroots Potential of Electronic Democracy"; "The Transformative Vision of Dave Hughes"; "Highways of the Mind"; and "Grassroots Networking on Big Sky Telegraph: Empowering Montana's One-Room Rural Schools." Plans to expand Big Sky Telegraph, flyers describing its services, news articles, and a class packet describing how to begin an online class are also included. Five appendices include background information, evaluative research considerations, Western Montana College's economic development initiatives, a states' progress update, and a multistate proposal for one branch of the Big Sky Telegraph project. (TES)

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BIG SKY TELEGRAPH

TELECOMMUNICATIONS
GUIDE TO
COMMUNITY ACTION

BIG SKY TELEGRAPH

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BIG SKY TELEGRAPH

TELECOMMUNICATIONS GUIDE TO COMMUNITY ACTION

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A GRASSROOTS CALL TO ACTION

Common sense dictates that we need new economic and educational opportunities in Montana to turn around our current decline. Telecommunications and distance learning offer individuals the freedom to make significant contributions to their communities, and beyond, by acquiring information access skills.

In the past, the good-natured among us have been frustrated by not knowing who or how to help. We now have telecommunications tools to empower the character of Montanans as a human resource.

When a Montanan county embarked on an alfalfa cuber project, did the investors know Wyoming had tried the same thing five years ago and it was a major disaster? The Montana cuber project recently went bust. Perhaps we could have worked smarter by gathering information based on successes and failures from outside Montana, as well as within.

An eastern trucking company carefully gathered information from online sources on the very best trucking components available, and then assembled their own trucks that go twice the number of miles of other trucks. This was basically an information function, one that can be replicated to benefit many different enterprises.

A large Montana cattle ranch purchased by the Japanese boasted the recent shipment of more beef to Japan in one month than from all other Montana cattle producers over the last decade. "Anyone can do what we've done, the telecommunications tools are available to everyone, with a desire to learn new ways of doing business," they explain.

"Telemarketing Takes Root in the Country" - Wall Street Journal, Feb. 2, 1989, discusses hundreds of jobs becoming available to rural towns through telecommunications.

These new tools ARE available to everyone! It might be a good idea for us all to pull together, learn how this is done, and share our knowledge electronically with all Montanan communities.

A few good people, with patience and perseverance, are all we need to begin uncovering these opportunities. Read on.

NEW OPPORTUNITIES FOR RURAL REVITALIZATION

Numerous rural economic development organizations over the past 20 years have determined the basic strategies required for success: Local action, a willingness to bootstrap or volunteer when necessary, aggressive positive attitudes, and an openness to using telecommunications to acquire new skills and information.

Just as a community must pull together and better learn it's own strengths in order to try new approaches and ideas, so do our rural communities need to pull together as a greater Montanan community to share available expertise and strategies. Our communities in Montana are so spread out that each works almost in a vacuum, often duplicating the information gathering efforts of other communities.

A new telecommunications network, Big Sky Telegraph, is now offering free training and loaner modems. Personal computer telecommunications give us the freedom to do what's necessary and to "get smart quick" by working together.

We need your help assessing new ways essential needs in your community can be best met through better connectivity with statewide resource providers. In a rapidly changing world, we need access to the very best information in order to preserve our cherished rural lifestyle.

Telegraph "works" because it is a people network more than a computer network. When a question appears on the system, each person regularly reading public messages has the option to refer that individual to resource persons they personally know of, conveniently and efficiently. Everyone in a rural community has a chance to contribute to the greater community of Montanans statewide.

AN INVITATION FOR COMMUNITY EMPOWERMENT THROUGH INDIVIDUAL ACTION VIA ONLINE SYSTEMS:

NO COMPUTER EXPERIENCE REQUIRED.

Information age telecommunications skills are emerging as a powerful, economical and increasingly easy-to-use means for efficiently connecting needs and services statewide, nationally and globally, to support rural community educational and economic development needs.

Big Sky Telegraph's Community Empowerment Packet contains complete instructional materials to show a non-computer user how to make a serious impact on the user's community. Nothing more is required than a microcomputer, modem, a little perseverance, and the ability to ask questions.

The information age tools are already here; they are not expensive or difficult to use. A working model has already been established; grant funds are looking for working telecommunications projects to support. What is needed is leadership at the local level, from the grassroots, from YOU!

We offer you a helping hand whenever you need it. You'll endure NO cost until after the training, and even then will not be formally committed in any way. At worst you'll have bravely tried something new, at best, you may open a whole new world of opportunity for yourself and your community.

COMMUNITY EMPOWERMENT THROUGH INDIVIDUAL INITIATIVE
A GENUINE OPPORTUNITY

The US West Foundation, in partnership with Western Montana College, has funded Big Sky Telegraph to stimulate grassroots innovation in rural education and community empowerment. Telegraph provides mastery learning instruction to empower individuals to benefit their communities through access to essential information:

- community support services,
- distance learning opportunities,
- economic development experts,
- global communications, and much more.

Educators and individuals in 104 communities will receive free training and modems to explore innovative ways computers and modems can help their rural communities develop financially and educationally through better communications with statewide resource providers, other communities, and national or global information sources.

Trained community Telegraphers will help identify key community needs and resources. Community databases will be created to coordinate local expertise, tourism opportunities and internationally tradeable commodities. Information gathering from national and global sources will bring the very best information available home to Montana for redistribution.

The Telegraph project is looking for individuals with character and determination. Computer experience is not required. We will train those with the desire to help their communities how to amplify their efforts through easy-to-use online telecommunications.

The total cost for ongoing use of Telegraph can be kept under five dollars per week in long distance phone charges. Telegraph subscriptions are available for $20/$15/$10 per month for business offices/community service offices/ and educators or individuals, respectively.

Did you know that patent, marketing and manufacturing assistance for your creative inventions is available "online," as is grantwriting assistance, tips on international marketing, statewide expertise and global telecommunications skills instruction? Is your community taking full advantage of these available services?

Telecommuting, or working-at-home in rural areas using a microcomputer and telecommunications, is marked as a major coming trend. It is a fact that an increasing number of companies now realize they can utilize better employees at a lower cost through rural microcomputer telecommunications. Learn how and why.

Telecommunications allows for the coordination and exchange of information more efficiently, at less cost, from greater distances, than ever before. This creates new jobs for forward-looking entrepreneurs. Information brokers, like former librarian Raelen Williard of Helena, make money from the home performing online information searches for businesses and individuals.

Collecting, storing, and updating information valuable to others, such as community resource databases is a means of literally creating wealth. Information gathering opens new possibilities of vending information to those without the resources to compile this information themselves.

Teaching remotely for pay, and vending telecommunications skills to businesses who need to stay competitive, WILL create jobs. Remote expertise in now tappable globally, making it technically possible to bring expertise to the point of the problem.

If we can find ways to market Montanan products to national and foreign markets though online systems at less cost than traditional means, this would be an important breakthrough.

In rural Montana we've been watching a steady economic decline for over a decade. Books such as "Rural America in the Information Age" suggest continued decline until information technology finds its way into the economic and educational mainstream of rural America, which could be decades. Unless we act on this knowledge!

YOU can make a difference in the future of your community, NOW! YOU can easily learn how to connect with national information sources, to glean the very best development ideas and resources for your community, without previous keyboarding skills or computer experience.

If you have access to a microcomputer, we can loan you a modem and an 800 number to become a skilled Telegrapher finding quality questions, on any topic, for your community members with friendly assistance from our network of volunteer Telegraphers.

Patience and perseverance, and the ability to ask questions, is all that you'll need to complete the free, short, self-study mastery learning online lessons, available online at your location, anytime. Through our one-to-one learning partnerships, former trainees serve as Teletutors, readily available to answer your questions. We can ask the nearest Telegrapher to your location to sit down with you and get you started. The only way to fail is for you to give up and stop trying, and we'll stand by you every step of the way.

There is no reason to wait to explore this very real potential yourself. It's bootstrap time, will those with Montanan maverick spirit please read on!

BECOMING A COMMUNITY TELEGRAPHER

HERE'S THE DEAL: Send us a letter indicating that you have access to a microcomputer (tell us what kind it is) and are interested in exploring this opportunity on behalf of your community. If your application for becoming a Community Telegrapher is accepted, in return for the training, use of our 800 number and free modem, we ask simply that you:

1. commit to completing the ten online lessons (we'll stick with you every step of the way),

2. continue to make short weekly calls for at least six months, ($5/week phone costs will be your only expense)

3. demonstrate Telegraph publicly to community members at least once and distribute Telegraph flyers indicating your availability to forward messages for any community members, just like Telegraphers of old. You'll keep simple reports on the information needs you've successfully met for community members from Telegraph's resources and advise us on how Telegraph can better serve your community,

4. RECOMMENDED; a GOOD IDEA would be for you to become a posted resource person and subscribe to Telegraph. This will open the door to creating a Community Expertise Database specific to your community which could be expanded to include little known local tourism opportunities and a roster of tradeable commodities to be shared globally.

An ideal applicant to become a Community Telegrapher should have access to a microcomputer in a public institution and be willing to take a small amount of time to be available to forward information requests by the community. Enthusiasm is catching!

The most publicly accessible location in each community will be sought, depending in large part on the enthusiasm of the applicant in encouraging community participation. A community support petition is encouraged, though not required.

We have funding for 104 community sites, selected on a first-come, first-served basis, other communities may still participate for a total sum of $300, which includes the cost of a modem and the training of one Community Telegrapher. Our goals include:

40 rural schools (to include 10 Native American Schools)
12 rural public libraries
12 rural economic development offices or chambers of commerce
12 women's centers
12 Soil Conservation Service or County Extension Offices
5 handicapped organizations
5 rural hospitals

YOUR KEY ROLE IS TO FACILITATE USE OF THIS NEW INFORMATION OPPORTUNITY BY YOUR COMMUNITY AND ADVISE US ON HOW TO BETTER SERVE YOUR COMMUNITY!

COMMUNITY DISTANCE LEARNING CENTERS:

The initial Community Telegraph Office could evolve into a Community Distance Learning Center. Help your community choose an appropriate Community Site with regular hours for a host/trainer to assist informal learning groups. Begin with one hour, one evening a week to demonstrate to community members. As their enthusiasm grows, have THEM volunteer to assist with community training on other evenings.

Community Distance Learning Centers can be started with one public access microcomputer and a modem allowing community members access to microcomputer skills classes and expertise direct from Western Montana College. VCR's, satellite dishes and other technologies can be added to this center as awareness of the possibilities grow.

As yet another part of the Telegraph expansion project, we'll be selecting five communities to demonstrate how they can set up their own information systems, on existing microcomputers, to provide free local information exchange and to link members of your community with resource persons on national and global systems at NO COST to the community.

GLOBAL COMMUNICATIONS COMING SOON:

Ask about our sister communities program with other countries. Your community could begin with rural student penpal exchange and work toward global trade and international friendship.

The increasing pace of technological and global change presses grassroots telecommunications projects like Telegraph to provide current and essential information specific to each community. Using our personal computers and modems we have a medium that allows us all to benefit rapidly from good ideas and to grow stronger through each individual's contribution of expertise and essential information.

You can't really tell someone about what its like to ride a horse, and you won't know how wonderful, and easy, personal computer telecommunications can be until you saddle up and ride.

Interested teachers, librarians and community members should contact Frank Odasz at 406-683-7338. If I'm not in, leave a message when the best time would be for me to return your call.

Modem users can call Big Sky Telegraph directly at 406-683-7680. Other options are: write to Big Sky Telegraph, Western Montana College, Box 11, Dillon, MT, 59725, Fax# 406-683-7696, Global UUCP franko@bigsky.uucp

Empowerment of Individuals, Organizations and Communities:

A collection of living case studies from Big Sky Telegraph

by Frank Odasz, System Operator (c) 1989

Big Sky Telegraph was created by grants from the US West Foundation of Montana and the M.J. Murdock Charitable Trust to train rural teachers in knowledge access skills and serve as a cooperative for individuals and organizations to benefit from the advantages of online telecommunications. Telegraph went online January 1, 1988, and has been increasingly active.

A grant was received by Western Montana College for $5,000 from the Intermountain Community Information and Library Services program (ICLIS) to create a two credit online course entitled "Computer Literacy on the IBM" as a means of providing microcomputer skills training at the students' location and choice of time. Larry Hyslop, Western's Microcomputer Center Director, developed and is teaching the class. Two ICLIS community libraries in each of four states will now offer his course to be delivered through library microcomputers and modems. Anyone, anywhere, anytime, can take this course, provided access to a microcomputer, modem and phoneline.

Jody Webster, Director of the Women's Center of Dillon, has been using Big Sky Telegraph to teach the 12 Montana Women Center Directors how to better share information. Jody recently received funding for homebound women to receive microcomputer skills training by using loaner microcomputers and modems to receive instruction from their home or place of work. Sue Roden, of Lima, MT, is now building her microcomputer skills from the Gas 'n Snacks truckstop between fillups. When stuck on Lesson2, a trucker named Windy was able to look over her shoulder and get her going again. Sue hopes to use telecommunications to work as a bookkeeper in Lima for someone in Dillon, 45 miles away.

Barb Burke, of the Missoula Women for Economic Development Group, recently received funding to use telecommunications to deliver microcomputer skills training to apprentice-style learning groups of women in Dillon, Glendive and Miles City. Not interested in college credit, these groups intend to work together to gain master of the skills that will open entrepreneurial opportunities for them...through telecommunications.

Ron Lukenbill, Telecommunications Specialist for the Montana Office of Public Instruction, has been learning online telecommunications on Big Sky Telegraph for over a year. As National Diffusion Network facilitator for Montana, he is in the process of bring the state facilitators from 15 states online to better share programmatic information.

At a recent NDN workshop in Salem, Oregon, he had 94 teachers from 15 states make their first online call and exchange messages. Enthusiasm prevailed as 280 messages were exchanged over a three day period, all on Big Sky Telegraph in Dillon, Montana. Ron now reports that funding has been received to train 45 regional trainers per year, for two years, in telecommunications skills with the intent that each trainer will train 10 others, covering the entire 15 state region.

Ron Lukenbill traveled to Russia recently to establish global connections between Russian teachers and Montanan teachers. He carried brochures from Big Sky Telegraph which present not only educational networking models, but economic development and rural community support solutions as well. Telegraph's online connections already had key persons expecting his arrival. Telegraph already has ongoing communications with an online educational system in Tokyo, Japan.

Roger Fuchs graduated from Western last Spring. During his last semester he took a Telecommunications class which covered online telecommunications, the only such course in the Rocky Mountain Region. Less than six months later, he now is the system operator for a new electronic information service sponsored by the Montana Department of Administration. He is online on Telegraph to continue upgrading his skills and to ask questions when necessary.

There are twelve different bulletin board systems currently running in Montana. Telegraph has been disseminating a master list among the different systems. The MT Dept. of Agriculture, Dept. of Commerce, Office of Public Instruction, and Northern Montana College all have systems up and running. Many others are in the planning stages. Training individuals in their use is the common problem. Currently, only Big Sky Telegraph provides online lessons in modem use.

Jack Degolia, Public Affairs Officer for the U.S. Forest Service has been learning online telecommunications on Big Sky Telegraph for the last month. He is now initiating a Macintosh Telecommunications Users group on Telegraph and has announced that the Forest Service will soon set up their own public service electronic bulletin board system. This causes mixed feelings since Smokey Bear has been an electronic penpal favorite with rural students using Telegraph for telewriting projects and will probably be hence available only on the Forest Service system, since his skills will no doubt be called upon to maintain the new system.

Western Montana College's Rural Education Center of Montana has recently received a large grant for a rural drug education program. Twenty regional rural teachers will be trained and serve as resource persons in their regions. Big Sky Telegraph will be used to share information between the members of the group and, in part, is credited with being a major reason the grant was funded. Being already linked with over a hundred rural communities through the local rural schools leverages any such grant funds.

Western Montana College's library has used Big Sky Telegraph for two years to receive resource requests from rural schools. Last week Marsha Anson requested a book from Wise River and was surprised to find it arrived the very next day. Rural schools need no longer be resource poor. Free ERIC (Educational Resource Information Clearinghouse Database) searches are available online with the results being sent electronically to the teachers. Bibliographies by topic, and selected lessonplans are offered by the library as well as topic specific boxes of posters and multimedia materials....dinosaurs is a popular request. Requests for materials not available at Western are met through use of the Western Library Network (WLN), to glean materials from dozens of libraries across the western United States.

The Montana State Library has recently brought four separate departments online to better share its resources statewide. Discussions as to how to train more librarians in online knowledge access skills are ongoing.

Big Sky Telegraph had a successful pilot teaching of "Information Access Skills for Rural Librarians" this summer. The course was developed and taught by library media specialist Margy Kernan from the Office of Public Instruction in Helena to six rural librarians, at their location and choice of time.

The Headwaters Resource, Conservation and Development organization has been using Telegraph for over a year to connect seven county economic development offices. Headwaters has created, and maintains, an online database of economic development information on the seven counties. Funding has been received for more databases concerning available buildings for entrepreneurial projects. Headwaters offers grant writing assistance among its many services. As an aggressive, innovative, grassroots leadership group supporting economic development initiatives, they seek to empower individuals and rural communities with knowledge access skills.

Headwaters recently received a grant to create an Agricultural Incubator without Walls, to be managed by Remi Monforton who will travel among the seven counties with a laptop microcomputer to keep in close touch with his clients while on the road. Remi is using his laptop to corral agricultural software from agricultural bulletin boards and out-of-state universities. Six counties near Lewistown, MT will be coming online to broaden the scope of Remi's work. Remi is planning a telecommunications and microcomputer skills support group for aggies to begin at Western Montana College.

Ann Rogan, Director of the SW Montana Special Needs Coop, is online with the rural schools to respond to special needs. She just received word from Salmon, Idaho, that a 13 year old quadriplegic (as the result of a recent accident) needs a means of using a microcomputer so he can keep up with his homework. She is eager to help, inquiries for the proper information have gone out to numerous other resource persons via Telegraph.

Technology Education faculty from Western, Northern Montana College, and the Montana State University are using Telegraph to offer lessonplans and interactive support and training to teachers statewide. A similar effort for Home Economics faculty is just getting started with an eye toward the circuit rider/trainer concept, disseminating modems to interested teachers.

Wyoming does not have an online educational system to speak of, nor does it have a rural teachers association of any kind. Since out-of-state calls are cheaper that instate calls, a growing number of Wyoming teachers are coming online on Telegraph to learn how to use online telecommunications and share resources. Allen Keinert, High School Librarian of Dubois HS, has already completed the online class and has been demonstrating the potential to the community. Shawna Fagnant of Linch, Wyoming has a modem but is frustrated due to substandard phone line quality. US West of Wyoming has turned down several proposals for educational online telecommunications systems. The rural teachers are doin' for themselves.

The recently published book "Rural America in the Information Age" by Edwin Parker notes that the Rural Electric Administration has found twice the number of faulty rural phone lines that US West reports and that rural communities risk suffering dramatically if they cannot compete with the telecommunications capabilities of urban areas. US West offers no training support for modem users and very weak support when complaints of phonelines too noisy to support modem communications come in.

Private individuals are empowered by Big Sky Telegraph as well. Gerry Bauer came to Western two years ago with a back injury to find a new means of employment. He now advertises his "Computer Access" computer supplies business online on Telegraph. Able to conveniently answer questions and receive orders online, such as for a puppy-damaged printer cable at the Polaris school, he has a rapidly growing reputation as a reliable, local, computer expert. He sold 5 computer systems last month and offers private microcomputer skills training as well.

Ralph Martin is a paraplegic from Willow Creek, MT. Ralph is in the process of training individuals from various Montana handicapped groups in online skills. Ralph has helped train several rural teachers and hopes to find funding to be a circuit rider/trainer. Ralph is also coordinating handicapped basketball teams from two states, and would like to be able to do so online, if he could find micros and modems for the various team captains.

Bob Bryant is a quadriplegic high school teacher from Ronan, MT. One of the more accomplished Telegraphers, Bob runs a desktop publishing business from his home and advertises on Big Sky Telegraph. Bob has been searching for grant funds to allow him to teach online courses for disabled individuals. He helps maintain the ReAbled files area on Telegraph.

The actual number of individual efforts and "dreams in the making" are too numerous to mention. Literally anyone can begin a new future through a system like Big Sky Telegraph. Telegraph's own plans are to attract funds for numerous individuals to train others in knowledge access skills, to create more hard examples of economic development successes, and to create other online systems that can be linked to global networks through Big Sky Telegraph.

Telecommunications today is where electricity was in 1920. We have it, but don't quite know how to use it. Grassroots leadership appears to be the most productive strategy toward demonstrating the potential.

Interested? Find a friend with a modem and call 1-406-683-7680. Ask a question and an entire community will respond with offers to help. Soon you'll be in a position to help others too.

Economic Development in Rural Communities

by Frank Odasz (c)

PREMISE:
Information flow in a rural community relates directly to economic development by affecting the circulation of local dollars. If this flow can be speeded up, local dollars can change hands more times and the economy improves WITHOUT any outside influx of capital.

The local newspaper runs ads and classifieds on a weekly basis. If this type of information were instantly available, anytime, by anyone, and could be posted at lower cost, the potential exists for improving the economy. Someone looking to purchase hay might have instant access to a listing of everyone in the community with hay for sale, rather than just those who choose to pay for an ad in the paper during a particular week. Firewood, babysitting services, yard care, garage sales, crafts for sale, positions wanted or available, anything could be posted.

Information technology applied to a local community would simply put the community in better touch with itself. Local needs and services would not rely on who can pay to run an ad in the paper, or who you run into at the coffeeshop or on the street. Local community volunteers could answer online inquiries from those unable to locate what they need, so that even the most computer illiterate person can still get a quality answer to any question they might have. All this can be done without great expense in time or money.

The time wasted routinely by parents trying to find a free babysitter through telephone tag could be saved through efficient use of electronic mail. Legal services, rudimentary health questions, crisis hotline numbers, community calendars, listings of local resources, and resource persons all can be conveniently posted online, with the option for anyone to respond directly to the right person at the convenience of both parties.

Beyond this level of straightforward streamlining of access to a community's own information, there lies the issue of adapting to the changing work opportunities presented by the information age.

Telecommuting is a term referring to working from any location using telecommunications. Opportunities are opening up for placebound persons to work, or process information, from anywhere using microcomputers and telecommunications.

A rural community, to take advantage of these opportunities must follow a common sense course.

First, local talent must be assessed and entered into a database so anyone can determine the strengths of the local community's marketable skills. Such a database can be designed for effective use without previous training. A list of keywords can be displayed. Entering a combination of these keywords results is a listing of all persons with talents or expertise relating to the keywords.

Beekeeping, ceramics, computer-aided drafting, breeding hunting dogs, and diesel-mechanics are all examples of keywords for a database of a community's local talent. It is typical for community members to have known neighbors for years but be unaware of the full range of expertise and skills these persons may have. The barber may be a sculptor, Hank at the feed store may know about electronic spreadsheets, and Mrs. Schmitz at the Two-Dot Ranch may know wordprocessing.

Next, market research must be conducted to explore where the local skills might be most effectively marketed. What are the top twenty telecommuting jobs? What are the top twenty companies nationally that use telecommuters from rural areas? What are the advantages to these companies of hiring rural residents. How can the local community add value to these advantages? Then the marketing itself must take place.

Online courses, with high levels of interaction possible between teacher and student through electronic messaging, provide a unique means of skill development receivable anytime, by anyone with reading and writing skills, from anywhere. While college classes are available from dozens of institutions nationally, non-credit instruction can be encouraged by local skilled residents. A local bee-keeper might teach others how to set up their own hives, or a farmer might teach about organic production.

Face-to-face visits can be kept to a convenient minimum, and ongoing contact with the instructor is both convenient and feasible after the instruction is complete. The great advantage of the course might well be the ongoing connectivity between local experts and local learners. This peer teaching "open university" concept offers a degree of prestige to those teaching, and a source of new skills to students. Almost everyone has a skill that others in a community might benefit from learning. The social "safety" and "anytime" convenience of exchanging electronic mail messages makes such a program eminently feasible.

Projections from books such as Megatrends suggest that as computers raise average incomes, and shorten workdays, a greater fraction of average incomes will come from leisure-related economic activity. More leisure time means more money spent on one's favorite activities. More persons will be adopting new leisure activities and opportunities for learning related to these activities will allow more opportunities for supplementing incomes.

There is a hint of a heady utopia where we'd all be working in the same fields chosen for leisure activities. The historian might teach Montana history and leads "value added" historical tours for foreign visitors. The painter could travel to art shows and hold beginning watercolor classes and intermediate seminars, vending art supplies in between.

Even beyond this level, adult literacy classes could be offered on a face-to-face level starting with primary school educational software. With the added dignity, and self-confidence that comes with learning by computer, these adults would be learning computer literacy and typing skills at the same time they learn how to read and write.

As soon as these formerly illiterate adults can formulate a sentence, they could begin posting want ads online on the local community electronic bulletin board. Perhaps aluminum can collectors could start a comprehensive community recycling project. Practice reading could be through online discussions on community issues. Though the initial services offered by these persons might begin at the lowest level, a bridge has been formed between the lowest end of the work force in a rural community, and a motivating, ongoing educational opportunity and the people-centered use of sophisticated information technology.

Equity of opportunity in the information age dictates the need for access to information technology by all levels of our society, else those without will be lost. A message of "I need food, or I'm sick, can you help me?" from a public access terminal should begin the most basic level of involvement of community services.

Minimal expense, and a comfortable social distance, coupled with the opportunity for direct neighborly assistance to those in need makes this workable. There is an untapped desire to do good for others in rural communities. There is often justifiably little faith that donated funds will be properly spent. Public postings of needs and services allow community members to offer help directly to those in need, bypassing the middleman and his sometimes inflated percentage. All this AND ongoing training opportunities might be available at a local skills and/or services center.

For such a program to take place, a local computer access center needs to be established. Older computers are perfect for this level of use. VCR's, CD-ROM databases, satellite dishes, faxes, and other technologies might additionally be donated by local businesses. Local volunteers or public employees could provide the training and staffing needs. The first students may well become trainers themselves in a few short weeks. Eager to share their newfound computer skills, the subtle message newly trained volunteers bear is "If I can do it, you can do it, and here's how."

This same access center can provide information assistance by aiding community members in posting questions of any nature on the local bulletin board which is reviewed daily by dozens of local neighbors who are eager to help...particularly if only a few minutes a day are required, at their convenience, without the need for personal visits or time-consuming phone-calls. This same theme can hold true on a more broadly regional basis.

A public access center can be the local rural school after school hours, a public library, a public office, gas station, feed store or a private home. The location of the community microcomputers would be the first step in selecting the appropriate site. The next step is in assessing the enthusiasm and computer literacy of the individuals at these possible sites.

People come first with community networking and are the keys to success. A local access person or community information specialist must actively facilitate use of the system within the community. Rote designation of community access centers by office or institution is bound to fail if the attitude of the individuals involved in not given priority in selecting the potentially MOST effective site in a community.

Adult literacy training programs would probably take a higher order of staff support, though community loans of portable computers for home self-instruction makes increasing sense, as does the volunteer peer teaching opportunities already mentioned.

Overcoming a community's resistance to computers is analogous to the passing of a collective kidney stone. It is something that cannot be avoided, and the sooner the better.

Rural states are realizing they are now competing in a global market. At what level might it be possible for a small honey producer in Bearpaw, Montana, to establish trade with a number of small business persons in another country?

The European nations will drop many of their international trade restrictions in 1992. Similar reduction of international trade barriers for other countries are inevitable. Electronic mail within a rural community, and between global communities is functionally the same. The enhanced information flow locally can logically be extended to the global community with little more than the establishment of a new person to send messages to.

Our history has shown only very large companies have succeeded in successful international trade. Advances in electronic communications may reverse this trend.

Tourism is on the increase, but rural communities are often left out of the mainstream of this industry. This is due largely to the way information is disseminated regarding a state's tourism activities. The best known tourism opportunities are ruthlessly promoted but numerous interesting, little known tourism sites and experiences go unknown. This results in traffic congestion at major tourist sites, but the bulk of the more unique opportunities remain unattended and unknown.

A community could create a local listing of all little known tourism opportunities and provide a community host for leisure counseling. For example, a New York banker with only a few weeks a year wants to pack all he can into his vacation. A custom-tailored vacation with unique, beautiful, little known destinations would be ideal, and he would be more than willing to pay a premium for help in preparing such a vacation.

Using his microcomputer and modem he may call the Dillon Bulletin Board and make inquiries of Dillon's Community Leisure Counselor. Local experience and expertise assess his personal interests, present ideas, and result in a customized, value-added vacation, right down to the quietest motel in town and the best place to eat.

The prevailing theme of information technology applied to economic development is adding value to information services or products. This theme applies to a community communicating with itself, and ultimately with the world. Hardscrabble practicality will dictate how this can best be done if we take a clear-eyed look at the communications tools now available. The survival of our rural lifestyle may depend upon our ability to apply these new tools without delay.

Rural Health Networking

by Frank Odasz (c) 1989

Rural hospitals are closing at the same time health care costs are escalating. A drastic need exists to restructure the economics of information flow between medical professionals, home care providers, pharmacists and patients in rural areas.

Increasing the ease of access to medical information is the greatest need which can be served by online systems. Often when a community member has a medical question the only option is to pay $50 for visit to a doctor. No intermediary informational service exists. Does yogurt help bladder infections? When does frequent urination indicate a problem? What are the seven warning signs of cancer?

There is a real need to reassure rural residents that someone cares about their health and will listen to them without costs, or at a reasonable rate. Public messages posted on a Rural Health online system could be answered conveniently by selected doctors or qualified nurses, with the responses being public for others to benefit from too. Doctors not online can still answer questions with a little clerical assistance.

The telephone has severe limits for busy doctors. While an answering machine can receive questions, there is no reliable, convenient means for returning an answer, unless there is an answering machine at the caller's residence. Even then, the response cannot be easily shared with others who have the same question.

Online systems cannot be used to conclusively diagnose or prescribe treatment, the risk of incorrect assumptions is too high. Ongoing contact between doctor and patient, after an examination or during long term treatment, can be very effectively served.

Public and private electronic mail messaging offers very real advantages toward establishing convenient interactive communications between doctor and patient, doctor and pharmacist, pharmacist and patient, doctor and home care nurse, nurse and peers, etc.

Through online messaging, patients could conveniently clarify a doctor's instructions and offer regular updates about their conditions. Doctors could easily send reminders to patients or ask questions on their progress. The process of ordering and confirming orders for pharmaceuticals could be streamlined. Dissemination of test results could be more efficient, typically requiring several calls to the doctor, who is rarely available to come to the phone.

Qualified assistance for wise selection of doctors and dentists, and for who to seek a qualified second option from, is a very real need.

Pre-visit pricing estimates from doctors is a genuine need as well as help determining if a visit is even necessary, or if a community health nurse could perform a service for less money in the doctor's place. Some doctors remain unresponsive to the economic realities of rural life and assume rural people know more about their choices for health care than they do. The tendency of rural residents to deify doctors may be exploited.

Online training and ongoing communications between community health nurses, home care personnel, and the medical community would allow for less expensive home care options.

Such increased communication, better matching existing needs and services, would allow maximum leveraging of local help to keep health care costs at a minimum. Monitoring of online messages by various community health organizations as to who needs help with obtaining meals, housecleaning services, grocery shopping, bathing, etc. could be greatly improved.

A listing of medical 800 numbers for organizational or support group assistance, including emergency hotline numbers such as poison centers could be posted online.

Health information and information sources regarding teen pregnancy, drug education, mental health counseling, cancer risks and diet could be at the fingertips of anyone interested, anytime, from anywhere. Public question and answer forums can serve as an efficient means of providing rural health education. Private mail offers a more confidential option.

Peer support groups with persons sharing the same affliction would become more feasible through the convenience of online messaging.

The rural teachers online can be enlisted to help disseminate health information to rural communities and identify those requiring attention. One hundred communities are currently represented online. One community person with a microcomputer could serve as the link for dozens of individuals in a rural community with a little organization and promotion. If located in a public office, or in a school (for evening use), direct public access to the microcomputer and modem could be feasible.

A community concern hotline could be created to better identify those who might need treatment but cannot afford it or recognize the need. A paraplegic in a nearby rural community has not been out of the house for 20 years, a case not necessarily isolated. There is no justification for such individuals being so abandoned in an age of information technology.

Chimes of Freedom
The Grassroots Potential of Electronic Democracy
by Frank Odasz (c) 1990

As media coverage of the turmoil in China may have changed history by globally televising the anguish of the Chinese students, so may online computer communications change the face of global democracy.

As education is vital to any democracy, so is information technology bound to enhance and empower the educational process. Even more striking, is the ability to rapidly disseminate ideas, and to engage minds in discussion regardless of physical location.

Such superconnectivity can be a powerful threat to any malfeasant politician or party. A connected populace, with direct access to the legislative process can empower the historically weakest element of a society, the grassroots citizens. It is at this grassroots level that use of information technology is most powerful. A democracy is defined by those who participate in it.

We must educate our people to understand that only those who are actively involved can affect the country. If only 20% of the population votes, then they control the country for the rest. There has been a growing feeling by American voters that they are not sharing in the process of running the country. It is time we moved "online" to the higher level of democracy made possible through information technology.

Just what is this mystical power of "being online"? It is something that must be experienced directly to be understood. One person cannot give his wings to another in this regard. It is for each of us to take this experiential step toward a true, global, participatory democracy. Being "online" means it is now possible for each of us to have a meaningful impact toward effecting positive change. The humblest of messages can be heard around the world.

The rules change when information technology allows convenient electronic mail access to elected representatives. Instant access to legislative updates means near immediate response to actions on the floor by the representative...who formerly had only his voting record, after the fact, to defend.

Through such information accessibility we move closer to a true participatory democracy - though at the possible consternation of the elected representatives who suddenly are held more accountable for their actions than ever before. The historical distance between the representatives and the grassroots populace disappears.

Ideas may be exchanged, reacted to, challenged, and reformulated faster than ever before. Just as our stock market now can react suddenly to changes through the use of computers, so can voters, for the first time, keep up with the pace of their legislators.

In an online computer conference, everyone may participate. Though most just read the transcripts of the ideas exchanged, anyone can offer reactions at any time.

This more efficient pooling of minds creates better solutions more quickly....or does it create more chaos? Perhaps we can't have everyone involved directly with our state representatives because of the logistics of few against many. On the other hand, we have community leaders, county leaders, state leaders, and national leaders.

Can information technology allow every individual in a democratic society to offer an opinion to political leaders anytime, not just at the voting booth? Can ongoing opinion polls be kept electronically? Can local votes be posted as a reflection of a community back to itself, at anytime?

Those who are not keeping a close watch on all pros and cons can cause confusion by airing narrow viewpoints. But if a democracy's strength is in its system of educating voters, it appears this level of interchange IS necessary as part of that necessary educational process. When written records of all viewpoints are made public, all sides can learn the fine points of their opponent's reasonings.

There is a special character attributed to information obtained or exchanged online. A sense of "empowerment" prevails to ideas expressed online. The fact that one's quickly typed comments may, within minutes, be read by dozens, even thousands of other minds is enchanting. The potential is for wisdom, once uttered, to find its way to potentially all other minds in a sublime, almost unfettered fashion.

There is an innate good naturedness, a neighborliness in most communities worldwide. Grassroots communications offers a means of sharing, a need that is often frustrated in our "modern" world of conmen and shyster evangelists. Peer teaching and community support can be as personal or as distant as an individual desires. But the convenience of the communication doesn't change.

If needs are made known online, community members can work behind the scenes to locate what resources or services exist in the community, and see that a match is made. Telephone tag cripples such efforts with frustration and innate limitations. The few seconds required to post a public message is equivalent to an instant mass mailing, with initial responses likely to be a quick as sending the message.

This same resource of community helpfulness can be used to train community members how to get online and communicate.

Communities have been defined traditionally by physical location. Groups of like-minded individuals that form online are called "virtual communities," and are just that. Virtual communities can contain members from all over the globe as easily as if the members lived on the same block.

Perhaps if we all learned to work together online, we might discover the true collective nature of the global community, the sameness of our differences. Our worldviews would expand beyond the religious doctrines and cultural biases we grew up with, and issues such as who is the one true prophet of God would not be grounds for killing one another, as we all realize the limits of our knowledge, as we join to learn together about the both sides of every issue.

There are two types of thinking, expansive and reductionist. The reductionist seeks to decide on answers and explanations to overcome uncertainty, such as fundamentalists who insist to have all the answers written in a single book, or resent questions, for the uncertainty they represent.

Expansivists accept that what they hold to be true depends upon what they know, and if they are learning as a part of living, their views may change as their thinking grows. Reductionists limit their growth, mistakenly believing that belief in easy answers preclude the need to learn more, as if God created a world that was well within their ability to understand completely. Creationists vs evolutionists is a classic example.

Ethnocentrism is viewing the world through your own culture as if it were superior to all others. Historically the easiest way to solidify a social group of any kind, when direction or loyalty seems to be wavering, is to identify a common enemy. This creates the classic "us and them" division. Railing against the "red devils" creates a more definite sense of group identification.

Many cases are recorded in history of conniving political leaders falsely identifying enemies, resulting in the brutal annihilation of whole societies. Insecure leadership tends quickly to vilify enemies and to take advantage of narrow ethnocentric segments of the usually uneducated populace. As the global education level grows, particularly through telecommunicated news coverage, such blatant manipulation of the masses will become less likely to occur.

Information flow in a society affects the power structure, the economy, and controls many socializing factors. Control of public opinion is related directly to this information flow. Through information technology, manipulated control of information may become less likely as the technologies become so widespread as to make centralized control, as in fictional Chinese news broadcasting, impossible.

A growing participatory democracy must push civic education and involvement. With public access terminals in public places, community peer mentors can teach and moderate online discussions. All opposing views can be recorded and turned back to the community for further clarification and discussion.

How can an online dialogue be established in community, county, state and national forums without suffering an unmanageable information glut? Mentors must edit local forums down to a manageable, representative set of views. Locals must have the options to lobby at any level, but not to filibuster, or jam fax machines, etc. More frequent local voting can prohibit a vocal minority from suggesting they represent more than they do by allowing them a convenient means of proving the popularity of their views.

We must discover we are not islands separate from each other. Co-emergence of ideas, as in the global move toward democracy, shows us to be all part of the same evolution of consciousness.

Electronic Democracy at the Community Level
A Non-technical Discussion

by Frank Odasz (c)

What is it, to be "online?" It means the devolution of "telephone tag," a new forum for positive, efficient action, and greater economy of both time and money.

Though conceptually different from our established communication patterns of voice phone calls and the postal service, online systems are easy to learn. To be considered "online," you must check your online mail regularly; otherwise those who leave you messages are frustrated because you don't respond.

You can quickly establish many new friends online as you start to pick up on the news shared in public messages and respond by asking for information. It doesn't take long to realize that you can communicate reliably, efficiently, and conveniently with more persons per unit of time than voice calls ever allowed, and the informality makes "being online" fun and even folksy.

Soon you find a need to send or receive a written document; perhaps you exchange drafts with someone several times, co-editing a grant request or joint publication, for examples. News of other online systems results in your calling new electronic systems. After noodling with different system designs you soon establish self-confidence as you learn online systems are more alike than they are different and can usually be figured out with some patience and attention to onscreen instructions.

Online database systems are undergoing design changes which make them easier than ever to learn. Enter a few keywords that relate specifically to your interests and lists of articles that refer to those words appear on your screen. All of a sudden you can search thousands of articles a second, from your home computer. Peers view you with awe as a superiorly informed citizen of the information age.

On an electronic system serving a rural community, regional conferences and meetings of interest could be routinely summarized and the transcripts posted online. Those with the ability to produce quality summative materials would be sought after. Condensing information to knowledge, and knowledge to wisdom, and disseminating this broadly...becomes the strength of a community, literally its newfound intelligence.

National sources of information can be gleaned for information pertinent to the community's interests, even to the point of Bearpaw, Montana, exploring new international markets for locally made goods. Online scouts lead the way and provide for the community's informational sustenance.

How then might online systems be used to streamline education for all citizens and encourage greater political participation within a community?

Telephone tag is the term for calling someone and leaving a message, and their returning the call when you're not in, and so on. Fifty percent of the calls between busy people don't get through and this limits community communications severely. Land mail has been the only real alternative, until now.

Electronic mail is a simple solution to this problem. A desktop computer serves as an electronic post office and is left on to receive calls 24 hours a day. Extra phonelines are used so that NO callers ever get a busy signal. The way this works is elegant. One person calls at his or her convenience and leaves a written message for another person. Then the other person simply calls at his or her convenience and reads the message, perhaps responding immediately.

There are some very serious advantages to this form of communications. Voice phone calls tend to be primarily social and are usually far longer than is really necessary to convey the information intended, hence time is wasted. Written messages tend to convey the message as succinctly as possible, and written responses are usually quick and to the point. With a written message addresses, phone numbers and detailed information are easily conveyed, instead of hastily dictated over the phone, leaving room for frustrating errors.

Given fifteen minutes, and a dozen persons to contact, voice calls would only get through to six of the dozen, and time lost to socializing would mean you probably did not even get a chance to dial all dozen numbers in the allotted time.

There is no question that there are times when a voice call is best, but most of our communications involve a very straightforward transfer of limited information which is more efficiently done by electronic mail. Reading a dozen messages, and answering all dozen within a fifteen minute block of time is a common practice. This represents a quantum leap in connectivity, and productivity for busy people. So much so, that once one has used electronic mail, telephone tag is all the more maddening once one realizes it is unnecessary. ("Why don't they get a modem!")

This efficiency means that our elected representatives could directly communicate with more of their constituents, and telephone tag, or being too busy will no longer be a sufficient justification for not responding.

Messaging takes place in a very simple manner. The sender enters the name of the intended recipient of the message, the subject of the message and selects whether the message will be private or public. Public messages can be read by anyone using the electronic "post office" and provide a means of instant mass mailings, another major advantage. Daily legislative updates are an example, instantly available to everyone, anywhere as soon as they are posted.

Messages are listed in a sequential manner in the order they are received at the "post office." There can easily be many different messaging areas, or conferences, each dedicated to information exchange on a specific topic, or for a specific organization. Anyone can list the messages and see the message number, whether it is private or public, who it's from, who it's to, and the subject of the message.

Any public message, or private message (to you only,) can be read by simply typing the appropriate number. Other efficiency options exist too. A caller can have the post office automatically list all personal messages, or all public messages that the caller has not read.

Since the caller is often making a long distance phonecall to send or receive electronic mail, it is a common practice to "record" all messages on the caller's computer with a two quick keystrokes. The caller then hangs up, and reads the messages at leisure. Responses are then written using a word processor, at leisure (to allow for carefully choosing the right words,) and saved as files named with the first name of the intended recipient. A return call is made and the written responses sent rapidly over the phoneline to the "post office," at minimum expense.

Once a few messages have been sent and received this becomes a much easier means of communicating than voice calls on the telephone. Sometimes a voice call is necessary, but cutting down on the number of necessary phonecalls saves a great deal of time, frustration and money.

You should know upfront that there is no substitute for the experience of sending and receiving messages "online." It is highly recommended you find a opportunity to go online for yourself. However, if you feel you have the general idea, let's look at how the efficiency of "being online" applies to electronic democracy at the community level.

Here is a scenario in 1992. Citizen Chuck calls up the local electronic post office and selects the Conservation conference. He enters a public message announcing that a grant for an Agricultural Incubator for the local community has been received and requests comments on what community members perceive to be the biggest agribusiness needs in our community. The next day he calls in and selects the option to receive his messages. He reads five messages and responds online to three of them. (Since he is making a local call he can afford to respond directly online.) Noting that two messages conflict with his option regarding local weed control, he posts a message to the system operator requesting that an ad hoc vote be taken regarding the weed control issue.

Over the next week callers note the public announcement regarding the vote and exchange messages discussing the pros and cons. At the weeks end each caller has the option to answer a short questionnaire (cast a vote) regarding the weed control issue. The vote count is taken at the end of the week and transcripts printed of the week's messages discussing pros and cons. Chuck then goes to the local chamber meeting with proof of public support for his opinions.

The next week the chamber approves the weed control issue, but requests that a broader vote take place concerning county-wide weed control. Another request for a vote takes place, with similar votes, following online discussions, taking place in the other communities in the county. Rural residents are included in the vote through the electronic post office in the nearest town. A public access computer is available at the nearest rural school for those without computers at home or work.

At the week's end the results of all communities in the county are tallied at the county seat. Discussion continues regarding a statewide weed control issue. A request for votes goes out to all counties, which in turn request votes from all towns within each county.

Online discussions of both sides of the issues are publicly available directly on the system and become part of a formal written transcript. The vote is the decisive measure of community opinion. Summary transcripts are submitted by each community to each county with representative messages from all sides. If questions arise regarding fair representation of messages (suggesting biased editing of transcripts) the full transcripts are publicly available.

Anyone who wishes to lobby for an issue must present their views online, answer questions, and eventually call for a vote. The vote count empowers them to lobby at the county level when they must conduct the same discussion process followed by a vote. This provides for a true participatory democracy where everyone can share in the process. Because electronic mail is written, available 24 hrs/day, and multi-phone lines are used at local phone rates, no one can complain about being left out of the process, except by their own choice not to participate.

Granted having a microcomputer at home makes it easier, but public access computers are a viable alternative.

Online scouts can use their modems to access online databases and national electronic systems in search of information to support their views, multi-state special interest groups begin to form to share support information. Our educational process could be expanded electronically to include all citizens on an ongoing basis. Community education need have no limitations with 24-hour fingertip accessibility to educators and regional experts.

The voting climate shifts from generalities and "public images" to one of "cite your references" where quality writing and thinking replace emotional appeals and mud slinging. Being more "mind to mind" sober rationality tends to take over, leaving behind the false image manipulation and appeals to emotion over logic.

The quality of ideas would prevail, not the force of personalities or social biases based on appearances. Everyone would have an opportunity to be heard thoughtfully.

In a face-to-face meeting social biases prevail. A blustery local leader may have little of value to say but can dominate the meeting by the forcefulness of his presence, ego, and booming voice. A quiet person in the corner with much more intelligence may not be able to get a word in edgewise, much less be heard by the noisy crowd.

In an online conference the gentleman's continuous prattle might well look foolish in written form. Written comments are submitted for the community to evaluate the ideas carefully on their own merits. Right alongside our leader's opinions are the quiet person's ideas, which shine bright against the louder leader's. The community finally makes an unhurried decision based on the equal presentation of ideas, not on the social pressures of emotionalism, bluster, and ego.

Such online forums can be ongoing over weeks or months, being accessibly anytime, from anywhere, by anyone. Documents of support can be swapped with convenience. Comments are not lost as in a verbal meeting, but are shared, and reread in transcript form. Responses are carefully edited before being shared, unlike hastily made comments tossed about in a physical meeting.

Communications shift from a socially manipulative focus to a more mind-to-mind emphasis where facts, not opinions, dominate. There is no longer the time pressure of a physical meeting, but a forum where all sides receive a thorough airing of their sides, and the real issues are examined in depth. This is truly democracy in action!

The Transformative Vision of Dave Hughes

Old Colorado City History

Here we are with Gordon Cook in what is now world famous Roger's Bar. To understand about revitalization of Old Colorado City, you must understand the context. Colorado City was founded, as a gold rush town, right here at the base of Pike's peak, on Ute Pass, the only way to get to the mountains between Denver and Pueblo. However they didn't find any gold short of Fair Play which is over 100 miles away. Now in the 1850s this was part of the Kansas Territory and the 25,000 people who went out here in the gold rush of 1859 had problems with land claims. When you bought a lot, you had to go 600 miles back to Kansas City to record the deed. So the El Paso Claims Club was founded. This was a group of businessmen substituting for government. They ran the town, hung horse thieves and recorded deeds. After a few years, the club began to lobby along with Denver to create a new territory which would be called Colorado. The Club was successful and Colorado City also outhustled Denver to become the first capital of the territory.

However, when the Civil War broke out, because no gold had been found nearby, the town had begun to die. The wagon trains no longer came up from the south. But Gilpin, a fellow West Pointer, at the little Gettysburg of the West in 1862, using a draft on the federal treasury in Denver, raised the Colorado territorial militia which marched 96 miles in 36 hours over Raton pass and kicked the hell out of 4,000 Texas Confederates who didn't know whether they were Texans or Confederates. Gilpin was in for a surprise, the drafts he drew were refused by the treasury in Washington. As a result the businessmen in Denver got Lincoln to fire Gilpin for political expediency. Then Evans of Evans Illinois sent his hoods down here in 1862 and stole the capital away from Colorado city. Without gold and without travels, it almost died. But farmers from the south taught the easterners how to irrigate and kept the town alive as a little agricultural community.

After the Civil War General Palmer, with yuppies from the East and people from England came out here and founded Colorado Springs (where there ain't no Springs) right next to Colorado City. He then reached over and created Manitou Springs on the other side so that the rich ladies of the East would use his railroad, the Denver and Rio Grande, to come out and take the waters. At this point Colorado City gained a sort of second breath and it's inhabitants became the iron workers and stone cutters, the working class for the "upscale" developments under way on either side of them.

Twenty years later, Bob Womack (who could ride his horse at a dead gallop and snatch a whiskey bottle from the ground on Colorado avenue out there) knew there was gold in Cripple Creek up near the top of Pike's Peak. But no one would believe him, because you see the know-it-alls are always down town in the Springs. They wear suits and ties and are highly educated. But the real people who were in Colorado city were a lot more practical and smart.

Finally some folk investigated, found him right and the great Cripple Creek gold rush began. It lasted from 1891 until 1915 as the greatest gold camp in the world with 50,000 people. The problem was you couldn't get there in one jump. You had to change railroads in Manitou Springs. Colorado springs was dry. So everyone came out here to Colorado City as the jumping off spot for Cripple Creek. You had 21 saloons in a row on the south side of Colorado Avenue out there. You had the only morality play which I know of in the 900 ghost towns in Colorado in which the dividing line between good and evil ran right down the middle of main street. The red light district was also on the south side of the street and tunnels were built so that the "decent" men of Colorado City could slip across the Street without being seen walking across the street. It was during this era that these Victorian brick buildings were built as this became the democratic and union side of town.

Furthermore a lot of the people from Cripple Creek moved down here because you had to roast the ore to drive off the sulphur so that the cyanide would work. The coal to do the roasting was up toward where the Air Force Academy now is. So the smart thing to do was bring the ore down from the mountain rather than the coal up. So consequently Colorado City became the great golden Mill town, adding mill workers to the railroad workers already here.

1973-1975 Running an Information Age Business

From running my information age business, Enjoy Colorado, I had come to know this history. I knew what people wanted, history and a flavor of the West. I retailed knowledge about Colorado and started by asking people what THEY wanted to know about the state. They want to see the Rockies, and so you give them a brochure and they come out and see the Rockies. But if you ask them carefully you find out that their dog had a cardiac, and they don't want to go over any passes higher than 8,000 feet, and if they are a German family, they want one kind of discipline, while if they are a scientist from Sandia Labs they want something entirely different. Well I could give them answers to any question. For example, if the wife were handicapped, precisely where on the south rim of the Back canyon of the Gunnison they could stop their care and let her see clear to the bottom without getting out. That precise. Got it?

So in 1973 I opened a company where I sold people my knowledge. I charged for time and materials. Within my little company i went out and learned 100% of the state. I can put you within ten meters of any boulder and tell you what kind of rock it is. And the question is do you want to fish or catch fish? There's a big difference. So we determined what people wanted at a psychological experiential level. I was running a pure information store. We file everything in the state by place and time, including duration.

To give you an example, in 1976 for the bicentennial I organized a climb of all the 55 14,000 foot peaks in the state. All 55 peaks were climbed simultaneously by 645 people in 100 climbing parties during the worst storm we ever had. I arrived on the top of my peak with Senator Gary Hart within 15 minutes of my predicted time.

I kept seeing this repeated theme. Everyone who comes to Colorado is looking for the possibility of moving here because it's the great western experience, where one can live in the great outdoors, in a community with some character to it and do business and succeed. For example one man wanted to travel through towns with no more than one accountant per every thousand of population, because he was an accountant and was looking for an opportunity to move. I had to unearth as my capital knowledge of Colorado. Of course my business theory was kind of "kooky" because in most companies you start out in the field and you work your way to the main office and then you spend all your time earning money so that you can go the hell back out in the field and vacation. In Enjoy Colorado, it was the opposite. The chairman of the board, namely me, spent all his time out in the field experiencing Colorado, while you had to start in the central office, learning the files and the information and then once you got good, we'd risk you in the field.

1976-1981 Developing and Executing a Revitalization Plan

So underneath the grime of old Colorado City and its 6,000 households in 12 square miles, I knew what was going on. Colorado Springs was so dumb meanwhile that it had destroyed its downtown. Damned dumb easterners come out here and they repeat the East. They tear down the downtown and urban "renewalize" everything and destroy its charm. As a result, not only was there no historical downtown, but Manitou Springs had turned into ticky tacky tourism as well. It seemed to me that here was an opportunity to revitalize a commercial district and essentially create a win-win situation for everyone.

What was the city's interest? The city of Colorado Springs had to do something because the tax base was declining. The delivery of municipal services to this side of town was starting to cost the city more than what it was delivering to the city in terms of sales taxes and property taxes. Furthermore jobs were declining. So the city was willing to come out here and do something, but it only had two ideas. Urban renewal. Slash burn and let someone invest some money on the good old Republican trickle down theory. Or noblesse oblige. Charles Dickens all over. Pat the poor folk on the head and give them a little welfare.

But west-siders were proud people. Surplus City was a million-dollar-a-year venture employing 30 people. That wasn't a bad business. Nevertheless on January 1, 1976 you had 8 linear blocks, 98 buildings 45% vacant. You could rent any building for 2.50 a square foot and you could buy any building for 10 dollars a square foot. Sixty-two businesses with 362 employees were doing $2.5 million retail sales per year. There were only two eating places in the whole area.

So I took a look at it and said wait a minute. This is a capital short state. All the capital has been extracted and shipped back East. Nevertheless, people move here and want to go into business for themselves. They want to get away from big business and big government. They have a good business idea but, as a consequence of the lack of capital, the bank makes them put so damn much down that they don't have enough for operational expenses. So six months later they go under and we all stand around and say "small business is unsound."

I began to read David Birch of MIT who was pointing out that our biggest increase of jobs would come from businesses of under 20 employees. So I said if the future is in small business in terms of leveraging jobs and if the city wanted only three things: removal of slum and blight, an increase in the tax base, and additional jobs, what could I do? Well I treated the city as an investor in the west side entitled to a return on their investment of what they asked for. Then I looked at the people and asked what do they want? Capital to go into their own small business. And I looked at the people who lived here and visited here. What do they want? They don't want to come all the way to Colorado, look up at Pike's Peak and see a shopping mall, and they also don't want ticky tacky tourism because it doesn't wear well. So I asked: "Was there any reason we couldn't have small business to bring back Old Colorado City without making it too upscale and gentrifying it and driving out the old timers?" I wanted a place in my front yard I could be happy with.

What I did was intervene in the process and simply went up and down the street and talked to business people because I knew one thing from my federal background. You cannot spend federal dollars without talking to the citizens. It is required by law. I recruited the local business people who were already here: Clark

Service Station here 50 years. Kenny Limmens who had bought the Mattress factory. (He paid 30 thousand for it. He now wants 300,000.) Gene Brent the character down here who ran the gun shop.

So we got together and resuscitated the West Colorado Springs Commercial Club. The result was a citizens' group made up of the new and the old businesses out here which could talk to other entities with a united voice.

So I sat down and studied the thing and listened very carefully to what people wanted. And good ideas came from the people. And then I looked around and found this SBA 502 program. A Small Business Administration Program that in 1976 said this: If you form in a community a non-profit economic development company and if it can come up with 20% of the capital needed for the fixed capital assets of a business, then it, the SBA, would guarantee any financial institution like a bank that made the loan 90% of the remaining 80% out to a limit of $500,000 for twenty years.

But since capital was short where was the first 20% going to come from? The allure was fantastic because I could see that if we set up such an instrument where the SBA would Guarantee a bank 90% of the first 80% AND could find ANOTHER way of providing the remaining 20%, then people in Colorado Springs who couldn't borrow there to set up their own business, will come out here because we have financing. And then I did something really new. No one had ever used federal block-grant monies to cities as the first 20%. Even the SBA assumed that you were going to go get a bunch of businessmen to put it up. But in a place that's flat on its ass, the businessmen don't have any money to put up -- another stupid federal assumption, as a result of which SBA 502 had never worked properly. Therefore we got the city to loan, through the development company, the first 20% of the capital taken from its Federal block grant funds.

Now let's take one example. Suppose you wanted to open a restaurant and you had both some operating capital, maybe 10 or 15 thousand dollars, and the ability to run a restaurant. Well we took this data and in early 1978 put it on a Radio Shack Model 1 microcomputer running Visicalc and looked at projections on this early computerized spreadsheet. Well if the projections made sense, then we could figure the loan to buy the building for 50,000, improvements to the building at 25,000 and heavy kitchen equipment at another 25,000. You needed 100 thousand but only had 10 or 15 and none of what you did have could be spared for fixed capital investment. Well the city, through the development company would loan you 20,000 dollars at 8% interest for 20 years and take a second mortgage on the property. Then we had no trouble finding banks willing to loan you 80,000 dollars because the SBA is guaranteeing 90% of it and the damned bank turns around and sells the loan on the secondary market and makes points to boot. It's risking only 10%, so when you take the points and add it to the interest that they are going to charge, it comes out to about 30% interest on what's at risk. Not because they are great bankers, but because they are making money, the banks were happy. And so by helping the banks make money we helped their self-interest. And meanwhile YOU got 100% of 100,000 dollars on a long term loan.

However if you wanted to borrow the money from us, you had to fix up the exterior of the building to go along with the architectural theme of the history of Old Colorado City. And then we turned around and got the city to pay for the architectural rendering out of the money that was for the project. Even if your deal didn't go through, the building didn't change and the drawing could be used for the first loan on the building that did succeed. And the drawings were done by an architect in town. It was just an elevation drawing done on the exterior of the building. So you got 100,000 dollars and architectural assistance. While all this was going on, I spent my time not only putting all this stuff together but also telling you about the history of the place. When Whitey Pine down here bought the old building that was really ratty, as a result of my immersing him in it, he respected the history of the area and he named his restaurant Thunder and Buttons after the two elk that carried Laura Belle, the Queen of the Red Light district, thundering down into Colorado Springs. The horses carrying the fine ladies of Wood Avenue would smell those rangy elk, bolt, and dump their ladies in the street and the police would arrest Prairie Dog and Laura Belle who would walk all the way back trailing their gowns in the middle of the street. By telling these tales, I was bringing the real true history was back as a function of small business investment.

But one of the businessmen said if I fix up my building, my taxes will go up. Well we told him it's in the interest of the state of Colorado that you fix up your building, so if they don't raise your taxes for a period of 5 years when you do it, will you fix it up? Well you can't do that! Want to bet? Well you've got a deal buddy. And in Old Colorado City a deal's a deal. You're a dead man hung from a tree if you break your word.

So we had to convince the legislature. Well nothing helps like a little morality play. We formed outside the old log cabin out there and had Gene Brent fire in the air with his Colt 44. We had citizens around. The press was there. Michael Garman, who makes the porcelain statutes that go to the White House and everywhere else, was there on his horse. We wrote a petition:

We the hard working, vote-casting people of Old Colorado City which was once the capital of the state before it went to Denver where colorado government has gone down hill ever since, invite the legislature to come down here and reenact its first five days. We then clattered off down the street and 2 days later road up the steps of the capital in Denver and called out to the Speaker of the House and the President of the Senate, and handed them the petition. Well, a week later the House and the Senate adjourned and came to Colorado City in a melodrama to reenact the early days.

Everyone had fun and we had a parade for the first time in years. (The parade is now an annual event. It's called territory days, every year at the end of May.)

Then we walked the legislators up the street and said we want a tax law that says if you fix up a building more than 30 years, old historical or otherwise, that you don't pay increased taxes for five years. The guys from Grand Junction and Grand Lake and Denver said: "you know, that would work in our town too." The legislation was passed and I went back and said fix your dang building up. You don't have to pay increased taxes for 5 years! He swallowed his cud and sold his building and the guy who bought it from him fixed it up.

Economic Outcomes and Impact of the Microcomputer

The thing took off like a shot. We made 55 loans. The city's never lost a cent, not one penny even though some of the businesses haven't worked. The last time I checked the 98 buildings are 95% occupied. The empty ones are only empty in transit to new businesses. You had all the restoration done and the area declared a National Historic District. I had to fly back to Washington and put a boot up the ass of the feds because they said: "Oh, this isn't elegant enough." I said: "This is Main Street, buddy," and in order to find out how to work with Washington I began to use telecommunications.

In the meantime this was a small organization that I was heading up. Small organizations have the problem of having either a director or a secretary, but seldom both until they get pretty big.

In outfits without a secretary the board has to do too much. Well I brought my first computer in Radio Shack in 1977 two months after it came out. I brought it over here and I was able to run the Commercial Club and keep track of every building and every floor and so on with a little database.

I simply stole the management ideas from shopping centers which offer centralized management in return for some of the gross to pay for public improvements like parking. The city was putting in the public improvements. But I had to coordinate it, to tie it together. We expressed our political clout through the Board of Directors of the Commercial Club who were all businessmen. This by-passed and out-flanked the bureaucrats. So every time THEY tried to give us a hard time, we'd go right over their head to the city council.

You must also understand that when the city came out here, part of the money was spent on the amenities necessary to make the place go. Parking lots, behind the buildings, and pawnbroker lights that you see up and down both sides of the street that further help to unify the diverse character of the buildings. And that was about two million dollars of federal money. The question becomes whose going to take care of it. Well in most of these communities you end up trying to do a mall type approach. Often you take the approach that the adjacent property owner's responsible. But in a mall, if a light in a public area burns out you can be assured that mall management will fix that thing NOW! You've got the security question also. But the mall also provides for this.

Well again I just stole their idea. When the city wanted to put meters in he parking lots, I said "wait a minute. We just spent all this money to put up free parking lots to compete with the malls and now you want to put meters in them?" "Well we've got to have money for maintenance." "So you've got a revenue problem, you DON"T have a meter problem. So let's back up and lets create something new. Lets create the Old Colorado City Maintenance and Security District." There had never been one before under state law which thought only in terms of capitol improvement districts. So we researched it and had a board of advisors to the city council created to be a feedback loop to this district once the tax was levied. We established the idea that you had to have the approval of 51% of the property owners before the city can impose an improvement district of any type. I said I will deliver the signatures necessary if you don't screw the businessmen by trying to make them pay back the 2.5 million in physical improvements.

Then we had the utilities people and parks people come up with a good estimate of what it would cost to maintain the 8 square blocks of improvements, the pawnbroker lights and the electricity they use, snow removal in the winter and so on. Well a good $50,000 bucks a year. So I sat down with my model 1 and using a spreadsheet took the total assessed valuation of the seven square blocks and the mills valuation of each building as a percent of the total. I divided it into 50,000 to get the dollars and then converted that back into mills of tax increase and came to the conclusion that a 38 mill property tax increase would pay for the district. Furthermore, since the last block wasn't done yet, the base would go up while the millage would go down and might flatten out at 25 in the future. But how to talk small businessmen into agreeing to what amounted to a 40% rise in their total property taxes?

Well I took my computer and converted it into dollars and cents for services rendered per month. For example Herb Parry had come into see me and said "Gee Dave I am going to hire an off duty policeman to rattle my door at night and it's only going to cost me $50 a month." I said "Herb take a look at these figures. If you buy them not only will you get the security of the rattled door, but also you will have a free but controlled parking lot behind, and snow removal, and the pawnbroker lights, and it will only cost you 23 dollars and 22 cent per month. Well what if it costs 60,000? I did the what if on my spread sheet and it came back with something like $27.50. So the what if gave him the confidence and he signed the petition. Seventy percent of all the property owners of Old Colorado City signed my petition to raise their taxes by 40%! It's working well, especially with our board of advisors watching to see that the city doesn't pull any shenanigans.

We took care never to ask for anything that the city shouldn't want to do. What we did take care was to tell the city HOW to do what was already in its own best self interest. We had better ideas and a working concept that highly-paid planners developers did NOT have.

Using National Telecom to Expand the Beginnings

When the Source first existed, I was having to fight some of the big boys downtown who suddenly didn't like this because it was getting popular. Little business people were coming out here and pulling up their bootstraps with a public-private partnership while the downtown had fallen flat on its ass. The big "studs" couldn't make downtown go. Urban renewal had come in and torn down the buildings and the ground was still flat 10 years afterwards. There was a lot a jealousy and to make this thing work. I had to basically be a Lone Ranger out here doing things for the local businessmen who otherwise would have been retaliated against by the local power structure because we were making the economy work WITHOUT the power structure. And his REALLY bothered some heavy weights in town who weren't as smart as they think are. Some men have grown up in this town, made a million dollars and couldn't do it again if their lives depended on it because they have confused what God gave this place, called Pike's Peak, with their business sense, OK? And they aren't as smart as they think they are.

But neither was I because I didn't know how to do this completely. I had some concepts and activism and understood these themes but the nitty gritty was tricky. I didn't know the SBA and historic preservation that well. So I got on the Source when it first came out and I asked questions because I understood that the Source had a whole bunch of professional people on it. I wasn't getting good answers. So I said well what's exciting about this place? And the answer of course was obvious the history. So I started telling stories. I can write a little bit so I told stories of the area and of Colorado City in particular. For example the glass factory right across from here was co-ventured by Jerome Wheeler of Aspen fame, General Adams of the Meeker Massacre fame and a man named Adolph Bush. Well one night three doors down here Bush came in downstairs in the Templeton Building, where my office is now, and Dr Winterness of the old Winterness family was upstairs and somebody went in to say Mr. Bush would like to see you downstairs and he went downstairs. Bush confronted him because he was angry about what the good Dr had put on the death certificate his daughter who died from suspicious circumstances. Bush shot the Dr. but didn't kill him. Well this was the very same Bush who went on to found Budweisser.

So when I would tell these stories on the Source to pick the brains of people on how to do it. I would tell stories, and gather a crowd and then out in this crowd would be engineers, lawyers and so on. I'd ask questions of my crowd and they would tell me about this contact or that agency in Washington. But at the same time the Source was the perfect place to develop my own ideas of the use of it to do such things as electronic publishing, and education when I taught the first class for college credit over the Source in 1981. Then I realized that this use of telecommunications could become the basis for people who could move here and go not into retail or service but into information age businesses. But in the meantime the problem is still the chronic underemployment.

Well we solved the problem of investment and we solved the problem of small business. In fact I'll give you the hard numbers. By 1984 Old Colorado City had gone from 2.5 million to 20 million in retail sales and from 62 businesses of which half were really marginal to 180 businesses with not a single business coming in from an out of state headquarters. We created 500 new jobs at a capital cost of 5,000 dollars per job. We put people in the ownership position of their own business and the city never lost a cent. Why? Because when an occasional business failed, and the property was passed on, with values going up it was always passed on at a higher price than that for which the loan was made. We didn't finance real estate speculators because for the building to qualify for the loan, classed as business capital equipment, you had to occupy at least 51% of the ground floor. We did the historic preservation because it was good business to do so.

Not a single condemnation of a single building under the police powers of colorado springs took place. There was not a single ordinance passed telling what you couldn't do in historic preservation because the community worked. It worked because we made the economy work in everyone's best interest. And finally the increased sales tax from the city is paying off in ten years 100% of all the federal money involved. This is one half the time of the scheduled 20 year loans. We did what government is supposed to do in economic development with no bullshit and we did it for a lot of little people not a few fat cats. And I'm damn proud of the way it was done because it blew virtually every theory out the door that you've got to go outside the state to get an investor, that its got to be big business and not small, that everything should be trickle down. There's not a keystone business there.

So round about 1983 I said ok I have worked long enough and hard enough and you business people can take care of yourselves now. Now I am going to add personally the third level of economics: retail on the first floor, service on the second floor, and pure information business on the third floor. I did this by setting up my own bulletin board called the Old Colorado City Electronic Cottage and putting on it politics called Roger's Bar because this is the place where west siders have always discussed democratic politics. It will become a metaphor for the virtual community that reflects the real community.

So then I stepped back a little, and these little west siders whom you wouldn't think had two nickels to rub together loved it so much that one of them left us $110,000. We're going to use it to set up a museum, maybe in the church that's next to my house over here right across from Bancroft Park.

The Future: Global Visions

I have evolved with my first partner Louis Jaffe onto Chariot which is a dial-in subscription business. And I still tell stories on Places like the Metanet and the Well and elsewhere. And by this time the fame of this place began to spread. So the Wall Street Journal shows up, the New York Times, Stern Magazine and McNeil Lehr. And so the people here don't get too excited when they walk in here with their cameras. The good old boys at the bar held the lights for them and never missed a beat. And they don't get too excited about my saloon journalism when I come in here and write stories datelined: third bar stool Rogers bar and the step over to the telephone there and upload them any where in the world, because these are the salt of the earth people, the lower middle class. This is the place where if telecommunications doesn't work, the failure will polarize our society. So step-by-step we have made this a total community with the online community adding a cross section from the highest tech.

Nevertheless when you come in here, you are a west-sider. It doesn't join you. You join it. And this is very appealing because

this is what a lot of people want. This is what a lot of people want out of the west. This is what a lot of people want out of their town where there is a sense of community --public works, private works, works together sometimes, nonprofit works. So we just made AMERICA WORK in 8 parallel blocks and called it Old Colorado City. It was the first capital of colorado.
Before I am done it will be the last capital of Colorado. It is already the electronic capital of Colorado. And it's also becoming something of an international center. The west Germans have come with Stern Magazine. Japanese have come and a lot more will do so when I'm through with them in Sendai latter in the month. The the Russians are coming the first week in June when Sergei Alexandrov of Novosti in Moscow arrives and we are striking a business deal between Novosti News Service and Old Colorado City Communications. My youngest son is now in Dalien, China with his lap top teaching conversational English to the Chinese and getting ready to dial out from there. And we hope to get Gorbachev on the screen here to talk to the good-old-boys at the bar. And we'll probably have a summit meeting here with Margaret Thatcher and Gorbachev. When I am in Moscow and my son's in Dalien and we get Montana into this circuit too, it's my hope Gordon, that we can go either to Siberia or Mongolia and set up the Genghis Khan Bulletin Board out there. We'll just use these techniques to make their little communities work too.

I've got my feedback mechanism working well enough that all I am doing is emulating Ghandi when he said: "There go my people. I must hurry and catch them if I am their leader." All I can do is implement their visions in their own context in my own community which makes it a better place for me to live in. But just remember also that it was not just me and the knowledge in my head. Without that computer and the knowledge in there, and the ease and speed, no secretary, no accountants and without telecommunications to pick brains elsewhere and to promote it, it also could not have been done.

"HIGHWAYS OF THE MIND"

by JEFU (Jeffrey Shapard), Jan. 25, 1988

TELEPORT POLITICAL THEORIES

(This document was originally an electronic conference hosted in Tokyo, Japan, on the TWICS network. Contributors' names are signed after each reply.)

A place to learn more about Colorado Dave's (aka COWBOY the honorable David Hughes) teleport political ideas...

I have started this topic in response to a note in "Kyouiku Talk" by Colorado Dave. He had passed on info to me, and others who might be interested, about an education net in my home Montana state that aimed to link up 160 some one-room schools. I was moaning about the lack of packet nets, and mumbling something about state support, and Dave came back with a realistic observation that the status quo government(s) of the current U.S. are unlikely to subsidize such luxuries in the boonies, but that doesn't mean there isn't a way... and then he suggested that "Kyouiku Talk" might not be the most appropriate place to go deeper, so... let's do it here.

Dave, this is *your* topic, so just enter MODIFY ORGANIZER and you are the full moderator, with the access rights to modify my brief opener and subject line, as well as this first note to set the agenda or outline what you meant by Highways of the Mind.'

--jefu

Well, the fundamental idea here, based on American history, is to think about the public's needs for affordable telecommunications links as we have always dealt with our needs for affordable transportation routes and infrastructure.
In 1787 when the US Constitution was approved, it provided that the Federal Government built 'Post Road' - routes over which mail could travel. There was an understanding then, and down through the years, that there was a general public need for routes of communications and that it was an appropriate function of government to provide them.

Since then there has been a broad consensus that it is indeed a proper function of government - Federal, State, and local - to build or support highways, seaports, and airports. Even what travels *over* these routes is entirely private.

The American West would never have been 'opened up' given its vast distances had not this political idea prevailed. For otherwise we would be travelling over private, commercial 'toll roads' and I can assure you - without an Interstate Highway System, public airports and on the coasts, publicly supported seaports, as well as the right of ways for rail lines, the Western United States would still be a wilderness.

But in Telecommunications, starting with the Communications Act of 1934, the US has, unlike most foreign countries, pursued the idea of *private* communications companies (AT&T) providing the services, while being granted a monopoly to do so until a few years ago, and being 'regulated' by government (FCC and State PUC's Public Utility Commissions).

Even after divestiture the local telephone companies -the 7 'Baby Bells' have a monopoly over providing telephone local service.

But now we come to the Age of Information - in which information itself, like manufactured goods, farm and ranch products, and natural materials, as well as 'services' are becoming the Strategic Resource of the United States. Knowledge, expertise, data, - whether held in giant data bases or in the minds of men - are increasingly vital to the public economic health. THUS THE GETTING OF "INFORMATION" TO MARKET is as fundamental an activity as was the moving of horse drawn wagons, or 18 wheeler trucks, as well as individual car, plane and ship travel over the past hundreds of years.

Thus I argue that in the next century we will need Highways of the Mind as surely as our forefathers needed Highways for people's bodies, and their goods and services for the general public welfare. And just as individuals can travel over US highways at no 'incremental' expense - but, with some exceptions (truck use taxes) at the General Public (tax) expense.

Now what is the practical impact of such a notice?

Well, I recently did some rough calculations for my home city of Colorado Springs. It has a daily work force of about 167,000 people. I said, "What if the basic economy of Colorado Springs was 'information' including its harvesting, production, storage, packaging, and distribution - and all the services (programming?) that go along with it?" Suppose everyone spent 8 hours a day at computer terminals producing - at roughly 30 words per minute effective rate - valuable information, or handling that introduced by others? Then suppose we compare the costs of them 'transporting' that information to market outside Colorado Springs by the CURRENT rates/method of the 'regulated public utilities' versus FUTURE publicly PROVIDED transportation, electronic transportation networks.

Well, I found that the total work product of those 167,000 people *could* be sent out of town over ONE T1 data network through a single Teleport at the effective rate of $.01 - or one penny per person per day! If through local phone circuits and 'concentrators' the data gathered locally were efficiently transported.' Or less than $1 dollar per 1 month.

But if each one of those 167,000 'knowledge workers' had to send the *same* information products out of town by standard AT&T business hour work rates under our present system, each with a Hayes 1200 baud modem it would cost $5,000 per person per month or $800 million in the aggregate!

Telecommunications Toll roads!

So it appeared at once to me, that if we treated 'information transportation' the same way we historically have 'goods and services' transportation, it would be very much in the economic, social, cultural, and political interest of the United States to build a series of interconnected Teleports AS PUBLIC UTILITIES at every level - city, county, state, federal just as we have city, county, state, and federal roads, airports, and sea ports.

And that future Americans should be able to travel at a generally shared cost over these Highways of the Mind in this Capitalistic society, just as readily as we do now. With no apparent compromise to the principle of a capitalistic economic society - which still, to me - is the best, even if imperfect-economic/political system for modern nations.

So the idea that all networks have to be *either* Federal, or Private, or Private-Regulated gives way to the idea of a *system* of communications routes, each linked to its area and needs on local, regional, national government basis.

I have even suggested to the City Council (in their Project 2000 public hearings) that the very conservative (politically) city built the nation's first Municipal Teleport, the way they have water, and power plants, and city roads - letting the public reach it over the regular Mountain Bell private telephone circuits - which are like private driveways to one's home from the public streets!

This idea is feasible it seems, for in the 600 page landmark "Huber Report" for the US Department of Justice Anti-Trust Division for their presentations to Judge Greene (who is presiding over the deregulation of AT&T) he found that what is *really* new is that while historically the highest cost was for 'switching' compared with 'transmission' (starting with human telephone operators) now and in the future, because of technology (digital switches) the *lowest* cost is for 'switching' and the highest for transmission.

So everything (modems, computers, video, voice, data) can be connected to everything else economically. Thus there is *not* a need for one gigantic single system!

And doesn't your link ups with Dasnet here on Twics tend to confirm that?

Well, I am not staying awake waiting for this City of 400,000 to jump into this idea. Which is why I have plans for going to that Colorado Mountain town of 250, and together with others setting up a small 'municipal' Teleport, link it to the townsfolk by local phone or packet radios, and base the economy, education, government, and a slice of culture on small computers and telecommunications.

And link it to all the other small towns of the world via these new Highways of the Mind.
---Colorado Dave

Dave, what you say also gets my blood to stirring, and it also gets me to thinking. Since I left Montana some years ago, my viewpoint has shifted quite a bit, from the regional to the global, or, it would be better to say, from the strictly regional to that of seeing the globe as a whole bunch of inter-related regions. I missed the national level, and I am not interested in, say, the development or decline of the American or Japanese national economies themselves as much as I am in the smaller regional economies and social structures involved, and in the way regional economies in one part of the world can collaborate with and benefit each other, despite the stupid politics of their national governments.

When I tell people in Japan where I am from, I describe my home state Montana as "an energy, mineral and agricultural colony of the United States," and when I hear people talk about how the so-called American economy is in an upturn, I think of all my unemployed friends back home, many of whom have become economic refugees to feed their families. (I have one friend who builds post offices in California to feed his family on the Montana highline.) Frankly, places like Montana have more in common with third-world resource providing countries than they do with the capitalist centers of America, Asia, and Europe.

I attended a conference in Dallas last spring called International Informatics Access that brought together a spectrum of people from various parts of the world, and from various persuasions -- govt and international agency officials, hard-core networking techies, visionaries, database and other service providers, scholars, and some other folks who are involved in various ways in the fields of informatics and third-world development. It was interesting to see the way different kinds of people approached the general theme of the meeting, which was to look at ways to apply informatics technology to development. The government people were obsessed with Policy and/or grand projects on a National Scale, involving lots of administration, financial assistance, and Giant Steps. The techie people, especially North Americans, were interested in State-Of-The-Art, and seemed to overlook the technical realities of most of the world beyond those parts of North America that have ready access to good phone lines and local packet net nodes, or else they were obsessed with Pie-In-The-Sky, which are visually great ideas that will become, but aren't yet, reality. They were more interested in the Technology than in the purposes, goals, and people involved.

But some folks there were busy exchanging tips on what they knew and on what was available and cheap and appropriate NOW, and this is what impressed me. For example:

* A bunch of Latin American doctors and a very fine woman from the DIALOG customer support section got together and set up a person-to-person network in order to help those doctors keep up-to-date on what they and their colleagues were doing, in order to make the most efficient and effective use of the databases on DIALOG, and in order to become resources for each other. They do it through a combination of DialMail, telephone, mail, and EcoNet, and they were up and running by the end of the conference... and in Spanish.

A librarian from costa Rica wanted to find a way to tie together resources for several school and municipal libraries in her country and she wanted to do it at minimal cost, so she took back some FidoNet software with which to do it. Low-cost, micro-based networked BBSs available now.

A bunch of small businessmen in the caribbean and several other places have been using a private network on EIES for several years now to exchange ideas and information for their own economic development, from the bottom up. They pay for the access and they gain the most from the exchange. They use long-distance telephone, local packet nets when available, and telex or snail mail to send messages to a clearinghouse which gives them a hand in the logistics.

On one hand we have actual geographical/economic regions, and on the other we have 'virtual communities' of people with shared interests, such as a common profession, both of which are absolutely inter-related. These are real, and the larger nation-state political entities-- mostly historical relics of colonialism/imperialism/19th century nationalism/socialism/20th century mass industrialism that are forever getting in the way are the out-dated demons which endanger the future of humanity and make it so difficult to move into the next global paradigm of the information age.

Dave, you have the right idea in looking beyond the government of the city of 400,000 you now live in to the cooperative village of 250 pioneers, because they are the future, no matter where they live. Governments exist to preserve the status quo, and what you are doing is shaking the status quo right out of the ol' tree and kicking it into the raging mountain creek beside it.

--jefu

Well Jefu, nations and local governments have their roles, and they are not going to go away soon but there is not only no question that the world economy is transcending national economies. It started with the movement of money. (The first US Teleport - on Staten Island New York City was a joint venture between Merril-Lynch (money management) and the Port Authority. With money movement a prime activity) very new, and very revolutionary, is the ability of very small entities - small businesses (which I am), organizations, educational entities, and even individuals - to do the same thing.

An associate in Old Colorado City (Rocky Mountain High conferencing system) is an international trader - who worked for large companies in Africa for years, then in partnership with a man in London, another in Johannesburg, at first communicating with a telex machine from his split level, then as he mastered what I taught him (as a paid tutor/consultant) over several years, shifted to desk top computer, then replaced telex with modem, even travelled in Africa with a solar powered lap top, and now spends half the time doing the same volume of business with these tools.

He even brought two Zulu Ministers of government to Old Colorado City to meet me and see my ideas on how to use packet radio telecom in the bush, solar powered. Old Colorado City is not Tokyo, but it sure is getting international!

Now, with his expertise we are exploring news ways to engage in international trade, he and I are heading toward a rather formal partnership - exporting ideas, expertise, and products. And communicate across town by telecom , not just across the world!

Yep, we'll probably be stuck with Government in various evil

forms for some time to come, but the less of it the better, by golly.
---Colorado Dave

You hit the nail right on the head, Dave, by saying that the ability of 11 entities to put this medium and its variations to work is new and revolutionary, and this is the future. This puts the power right into the hands of those who stand to benefit the most from it, and who are in the best position to know what they want to do with it and how they want to do it. We are talking about putting existing, or reachable, technology to work now in ways that are just waiting to be discovered. (I think I have just crossed over into the "Discovery Model" topic Skip Conover started...) Your friend and his Zulu buddies are a good example, and I would sure like to meet them someday.

You also made a point that although Colorado Springs isn't Tokyo, Old Colorado City is sure international. This is the aspect that just spins my head every day: it doesn't matter where you are -physically-, because a virtual community transcends the barriers of time and space... and nation.
--jefu

Yes yes. Yesterday when Michael Gardner, publisher of a cultural magazine called Springs Magazine introduced me to the Ad Federation audience, he said, "Dave lives in many 'virtual' communities." Sure do!

In some of our more intense online political discussions (particularly on the system called 'The Well' in California) we explore how the ideas of nationalism, the nation-state, will be affected by the coming globalization of telecom for just about everybody. One notion keeps recurring to me - that through history political boundaries have been based upon various physical boundaries that affected 'communications'. Thus Japan is defined by its islands' limits. Hawaii also, but like Japan interisland traffic out in the middle of the vast ocean 'linked' people together. Mountain ranges, rivers, deserts have always made natural borders - since communications across them was difficult.

In the more modern age, in the US, borders (states) were less based upon physical boundaries but still defined in many ways by 'limits of communications' . So Colorado, a perfect rectangle, about 300 by 200 miles is essentially one-day's drive for anyone.

Now will it be possible that in the future that 'political boundaries' will be most 'naturally' defined by telecommunications boundaries? Fee structures? In the US where there are about .0,000 local free computer bulletin-boards "bbs," about 95% of all the use of and one is from *within* the local dialup area - the 'no toll' area.

Here in Colorado Springs, for example, a city of 400,000, there are about 45 bbses. People can dial in free (just for their monthly cost of having a phone - flat rate) from the Air Force Academy to the north, Green Mountain Falls, Woodland Park/Green Mountain Falls/Manitou Springs to the west (though all three of these small 'towns', are political subdivisions of their own), Fountain to the south, but just the end of the city to the east.

This is gradually, almost imperceptibly, creating 'virtual electronic towns' that are quite removed from, say Denver 70 miles north with *its* 155 bbses and a long distance toll call in between.

SO in the f. .a. .r distant future in the Information Age will we all live in live in 'virtual communities, virtual political regions' virtual nations that evolve from communications boundaries????

If this connection from the United States were forever no-toll, would we all begin belonging to this virtual community, and eventually make rules, then by consent, laws, taxes, governments?

And I want to see the day when *any citizen* may get, read, scan, query *any* public (government) document at any time from local (post office?) government offices - at no cost to themselves - but to the general taxpayer at large. From the tiniest village on the northern tip of Hokkaido (where I spent a pleasant evening in a great snowstorm one night 37 years ago. . .to) to the center of New York City.

---Colorado Dave

TURNAROUND IN THE BIG SKY
Grassroots Leadership for Economic Development
Talk by Robert Lewis Shayon
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The Annenberg School of Communications
University of Pennsylvania
At INFOTECH For Economic Growth
Western Montana College, Dillon, MT
Home of the BIG SKY TELEGRAPH System
March 31, 1989

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Dillon, Montana 1989

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I want to thank Frank Odasz for inviting me, an Easterner, to fly 1800 miles from Pennsylvania to Western Montana, to exchange ideas about telecommunications and economic development with a group of western leaders. That may be regarded as sort of unusual -- from a historical perspective. The American west hasn't always been friendly to Easterners, although if we look backwards in our nation's history, we note that the western pioneers originally came out of the east on their way to the Pacific wilderness.

The westerners in the last one hundred years had sound economic reasons to feel unfriendly to easterners. In a book entitled THE ANGRY WEST, by the former Colorado Governor, Richard D. Lamm and journalist Michael McCarthy, the authors relate the "sad history of the west." "Political decisions...made for the west by bureaucrats on the Potomac," they tell us, "were matched by the financial and industrial decisions made by men in board rooms in New York and Boston--men who did not understand a landscape with a fragile and easily disrupted ecology, a climate that makes water worth more than gold, a population thinly scattered among farms. ranches and small towns. And those men treated it as a colony of the East."

The authors of THE ANGRY WEST remind us that capital which was instrumental in developing the Great Plains has always come from the outside, from the East; and western investments made by easterners have always yielded more wealth to the east than to the west itself.

In another book, MONTANA --A BICENTENNIAL HISTORY, Clark

Spence, the author, calls Montana a classic case. I quote from the book: "From the American Fur Company to Anaconda, the Federal Reserve System and the fossil-fuel giants of the 1970s, spokesmen deemed the region an economic, political and cultural satrapy of other parts of the nation. Here, Montanans watched Standard Oil try to change a land of enchantment into one of their banks."

Earlier John Gunther, in INSIDE U.S.A., commented: "Anaconda, a company aptly named, maintained a half-century constrictor-like grip that made Montana nearest to a colony of any American state except Delaware." (End quote). It was here in Montana, too, that William Andrew Clark, came from Iowa in the 1860s, consolidated the state's copper industry, accumulated one of the world's great fortunes--upwards of $250 million--and bequeathed it all to the Los Angeles Philharmonic Orchestra, the Clark Memorial Library at UCLA, and the law school at the University of Virginia.

The old pattern continues today, conclude the authors of THE ANGRY WEST, citing contemporary out-of-state ownership of western companies, newspapers, and television stations. As long as the pattern holds, maintain ex-governor Lamm and Michael McCarthy, it is a fact that no amount of economic movement to the west will help it. It may build. It may grow. Perhaps it will prosper. But, as in the days of the Guggenheims and the Rockefellers, it will not belong to itself. It will not control its own destiny.

But for the West to blame its past and modern exploitation on the East is to take too narrow and limited a view of economic and cultural history. Exploitation of one area of the world by another is very ancient history, known in the textbooks as colonialism. Rome drew wealth from the vast provinces that it conquered. England, France, Holland, Portugal and Spain enriched their European treasuries from the mines, forests and harbours of North and South America. Cities and nations have successively established themselves as centers of trade and commerce by exploiting what economic historians call the world's peripheries.

London was the center and the American colonies were the periphery from the sixteenth to the early eighteenth centuries. From the war of independence to today the American West has been the periphery to the capital intensive centers of New York, Detroit and Chicago. Third World countries, underdeveloped, are the peripheral nations of the modern industrial and post-industrial states, remote from, revolving around and dependent on the capital and military power of the core centers of The United States, Europe, Japan, the Soviet Union and the emerging capitalist nations on the Pacific Rim.

Traditionally to be at the periphery is to be off the beaten track, off the main highways where people who exchange commodities are accustomed to travel and do business. To be on the periphery has meant geographical isolation, lack of population density. Montana has been a peripheral state. Look at the map.

Montana is a northernmost great plains state touching the Canadian border. In size it's bigger than four New England States. Yet its population is about 800,000. Would you like a visual illustration of Montana being off the beaten track? A New York Times article, December 29, 1988, first page of the Business Day section, was headlined A SUPERCOMPUTER IN EVERY POT.

The article reported a proposal by government officials and computer scientists for a Data Superhighway running from Cornell University at Ithaca, New York in the east to the University of California at San Diego in the west. The network would be a high-speed, fiber optic data link-up joining dozens of super-computers at national laboratories and making them available to thousands of academic and industry researchers around the country.

In the East it would run from Cornell to Princeton in New Jersey, to College Park, Maryland, Carnegie-Mellon University at Pittsburgh, Pennsylvania, to Ann Arbor, Michigan. to the University of Illinois at Champagne, Illinois, thence westward to Lincoln, Nebraska and Boulder, Colorado, to Salt Lake City to San Diego. Future links would take the network to Palo Alto and Seattle and south to Houston. Now, as you look at that map, ask yourself, where are the two great holes in the proposed super-computer route across the United States?. The big gaps are in the South, and you guessed it--all across the northern prairie and Great Plains states, including Montana. Montana is what you might call a "by-pass state." It's off the main highways, an isolated area of the country. Of course, it's got pure air and great scenery, a magnificent place to live if that's the life-style you value, but what's it got to bring people to live here, to prosper, to raise children that will have to go elsewhere to find jobs?

In doing research for this talk, I asked some people on the Big Sky Telegraph for their views on Montana's economic situation. One common note they all sounded was Montana's Brain Drain. "8,000 young people leave the state each year." One farmer who sold forty percent of his water to an Intermountain Water Project, said: "We export about 90 percent of our young people out of this area. Only about ten percent stay. Another Montanan, an official of an International Trade Corporation working on economic development with a consortium of Japanese corporations told me that he had "four kids in college and all are looking forward to leaving Montana to find jobs."

Joel Garreau has written a book entitled THE NINE NATIONS OF NORTH AMERICA. His thesis is that the conventional map of the United States showing fifty states is all wrong. There are really three major areas, Canada, the U.S. and Mexico and they are truly divided into nine nations, each with its own unique character and its own descriptive name:

New England, Quebec, Dixie, The Foundry, MexAmerica, The Bread Basket, Ecotopia and finally, The Empty Quarter or the Great Plains states and western Canadian area extending north. "This high, arid, resourceful, beautiful, often still pristine Empty Quarter is the last colony of the rest of North America."

Now, I call your attention to the fact that I have been talking about centers and peripheries and empty quarters in the traditional terms of time and distance: how far it is from one place to another and how long it takes to get from there to here. In those traditional terms Montana is--to employ a political metaphor used by President Bush when he was asked about how much he knew about the Iran-Contra affair--Montana is out of the loop. It's not in the chain of communications. It's not a player in the big game of high-powered world business.

Really? Not in the loop? Aren't we living on the threshold of a new age? The age of computers, satellites, trans-oceanic fiber optic cables, teleconferencing in real time, high-speed voice and data link-ups? In very fact isn't this what scholars and television commercials call THE INFORMATION AGE? And in this new information age isn't the difference between center and periphery wiped out, gone, vanished? Who can tell me the difference between center and periphery today? When I talked via The Big Sky Telegraph to Frank Odasz from my home in Philadelphia, to ranchers and librarians and teachers in Montana whom I had never met face to face, were they at the periphery and I at the center or were they at the center and I at the periphery?

If you still think about Montana as being on the periphery -- what about the Solomon Islands in the South Pacific? A colleague of mine at Temple University in Philadelphia is head of the Anthropology Department. Recently he was awakened at three o'clock in the morning by a phone call from the Solomon Islands. The caller was a young man with whom he had worked when he had been in the Solomons on a field expedition. I have a letter I want to send you, said the voice from the South Pacific. Shall I send it by regular mail or shall I fax it to you? The caller was a member of an island tribe that still practices ritual dances. Now he was working at a brand new resort hotel that had a fax machine on his island. Half awake, my friend the anthropologist mumbled: You'll have to send it by regular mail. I'm sorry but I don't have a fax machine in my home." Who was at the center and who at the periphery -- the young tribesman from the South Pacific or the sophisticated anthropologist in the center of Philadelphia?

Let's bring it closer to home. Let's talk about the

Big Sky Telegraph. Frank Odasz sent me a copy of THE FIRST ANNUAL REPORT FOR WESTERN MONTANA COLLEGE'S RURAL TEACHERS NETWORK. The project trains teachers and develops on-line services and resources. The report states that "Calls from over 20 states have been recorded. Regular calls come in from Wyoming, Idaho, Vermont, Colorado, California and Texas."

Another item in the first annual report informs us that The Intermountain Community Learning and Information Services Project donated $5000 for the creation of a new online course entitled "COMPUTER LITERACY ON THE IBM P.C.

This course will feature an emphasis on economic development and will be taught in Wyoming and Montana to anyone, anywhere, anytime with an IBM compatible computer and modem. Here are some other items: The International Electronic Networking Association has requested a presentation by the Headwaters Resource and Conservation and Economic Development office in Butte at the ENA's upcoming conference in May in Allentown, Pennsylvania. Fifteen states are currently considering using Telegraph's communications services to connect the federally funded National Diffusion Network state facilitators. The OTA (the Congressional Office of Technology Assessment), an advisory organization to Congress, featured The Big Sky Telegraph in a recent publication reviewing successful educational telecommunications technologies. Five hundred Bellcore managers witnessed a live demonstration of Telegraph at their annual Bellcore policy convention in Atlanta. More than 300 requests for information have come from as far away as Singapore, Hawaii and the Cayman Islands.

And finally, Telegraph is in the process of establishing economical connections through software advances allowing access to the global Usenet Network of over 8,000 systems. Rural teachers and students will soon be able to have international penpals. There is a good possibility that within the next year connections will be established with Japan, Russia and China. The potential for Third World replication of this project has not yet been fully realized.

Third World replication -- that's a heady thought. While we appreciate the rhetorical euphoria of the first annual Big Sky Telegraph report, let's remember it will be a long time before its own potential can be fully realized, much less replicated by the Third World. Big Sky Telegraph may have the capacity to reach the world but it's merely a mustard seed now. Someday as in the New Testament, it may grow into a great tree and birds may rest on its branches, but the problem now is how to nurture its immediate small growth. We'll consider that problem in my talk, but first let's pause and consider what appears to be an anomaly in my image of Montana.

We've made the point that the Big Sky Telegraph is at the center, potentially, of the world, and a moment ago I showed you a map of the proposed super-computer by-passing the state of Montana completely. Isn't this a logical contradiction? Montana being in the loop and out of the loop at the same time? Well, maybe being in the loop is a future projection, and being out of the loop is a short-sighted present view of things. It's not the first time that the short-sighted view has dominated. It was so in the middle of the 1800s when the scouts and explorers first came into contact with the Great Plains area of the American West.

Walter Prescott Webb, the American historian, in his classic study, THE GREAT PLAINS, tells us that the first men who crossed the plains area called it "The Great American Desert." Pike wrote: "These vast plains of the western hemisphere may become in time as celebrated as the sandy deserts of Africa." He saw the restless, moving frontier of the country stopping at the borders of the Missouri and Mississippi rivers. He predicted that citizens would leave the prairies that were incapable of cultivation to the wandering and uncivilized aborigines of the country. The first settlers coming out of the green eastern wilderness saw the Great Plains as a barrier, and they passed through it as quickly as possible on their way to the western Pacific wilderness. It was only when the frontier had gone,that the westward flow of settlers bounced back into the great plains looking for beef and gold.

Montana is still out of the loop in the popular economic imagination. I attend many international conferences of government officials, telephone executives and academics. Three weeks ago I attended two such conferences in Washington, D.C. -- one on the effects of the divestiture of AT&T which took place five years ago, and one on Fiber to the Home. I have attended similar conferences in Paris, Aruba, Tokyo and Yokahoma, Windsor, Ontario, Cannes on the French Riviera and Barcelona. The presentations, the panel discussions, and the informal talk at lunches, dinners and breakfasts and in the posh hotel corridors where the conferees meet, are all about the market potential for new telecommunications technologies. But the talk is exclusively all about the big markets in the high-density cities of the globe.

I have had a strong interest in the development of rural areas for many years. I have pursued this interest in the Appalachian region of Kentucky, in Maine, and in Japan from southernmost Kyushu to the northernmost Hokaido. And wherever I find myself at telecommunications conferences. I make it a point to say to the telephone industry executives, "You people are always talking about high density markets in the industrialized areas of the world. How about the rural areas of the world? What -- if anything -- can the new and exciting telecommunications technologies do for the rural areas, the remote and isolated peripheries?" And the answer invariably is a shrug. "Well, it's really too bad," they say, "but the numbers are not in the low population areas. I suppose they'll have to wait for the trickle down effect. Someday in the long run, perhaps in the 21st century perhaps we'll get to them. In the meantime we have to go for the high-profit areas first." Telecommunications is being privatized in the U.S., in Europe and in Japan. And privatization seeks to maximize profits. Privatization has no social conscience, except where it has public relations consequences for the international hi-tech firms.

Montana will have to wait: that's the big-time gospel. But Montana doesn't want to wait. Everywhere across the Great Plains states, in Nebraska, Wyoming, Colorado, Idaho, Arizona, people are organizing, marshalling their resources, looking for ways to get the West into the Information Age. Non-profit and profit agencies are planning to add value to products, to encourage the rise of non-smokestack small businesses, to enter into joint ventures with American and foreign capital. Montana is developing government strategies, figuring out ways to upgrade its educational system. The Big Sky Telegraph project, underwritten in part by U.S. West, is an example of this exploratory activity. The Center for the New West is another. On March 3rd, in Helena, the Montana International Trade Corporation announced a partnership with Japanese corporations to study what type of investments the Japanese may want to pursue in Montana.

Attract industries, draw on intelligence rather than on human backs, seek to become a global socio-economic and cultural center, look to the Pacific Rim, create new job opportunities for a productive and well-educated workforce. People are talking about a Montana satellite, about packaging beef in the state for world export, about developing tourism. There's a lot of excitement going on but only the future will tell how much of it is desperate bootstrap rhetoric trying to get out of the traditional boom and bust cycle of Montana's economy, and how much of it will pay off in real economic and social change. There's a down side, too. I have talked with ranchers and business men and teachers on the Big Sky Telegraph and detected a pessimistic note.

People who own ranches that have been in their families for generations are being forced to sell them. The cattle market is down. Some teachers say the cost of maintaining one-room, isolated schools is a drain on the taxpayers. Montanans are conservative, one teacher asserted. They won't change easily. One rancher admitted that ranchers are hard to change. They know how to raise cattle, but they don't want to learn any new ways. Attitudes have to change. And at a deeper, more fundamental level, Montanans are beginning to realize that the old boom and bust cycle is obsolete. There won't be another boom. The world is changing. A global civilization is emerging, and Montana will have to change too or else risk losing its children to the outer world, and virtually become again the Empty Quarter, the Great American Desert.

It's a familiar pattern--the problems of social change. There's always a bright, get up and go side, venturesome, exploratory, willing to take a risk. And there's always a more pessimistic or realistic side, seeing the stick-in-the mud attitudes. And endemic to both optimists and pessimists is the big, over-all question: where will the capital come from? A special report on rural economic development published in November 1988 by the Center for Rural Affairs in Walthill, Nebraska delineates two possible approaches. One they call the Corporate Approach; the other the Community Approach.

The corporate approach has as its goal the replacement of jobs lost by a depressed rural economy with new jobs in hi-tech manufacturing industries and in telecommunications. The basic strategy is to offer incentives to out-of-state industries to locate their hi-tech businesses in rural areas. But in their definition of rural areas, they propose a triage process. Triage is a military term created by doctors at a war-front. It means that with limited resources you first help those who can benefit the most. In rural areas those communities that can benefit most are those with at least a 5,000 population. You train and re-locate people in such communities into urban areas or bedroom, suburban communities, and you sacrifice or forget about helping communities that have less than 5,000.

The trouble with the corporate approach, argues the Nebraska Center for Rural Affairs is that corporations look for areas where they can find a large pool of labor willing to take low-wage, part-time or high turnover jobs. The community is taxed to provide services and incentives to industries. Smaller rural communities are abandoned, larger rural communities are exploited, and the public foots the bill. Everyone loses except the corporate interests.

The community approach chooses to revitalize all communities committed to self-development--whatever the size of their population. Don't abandon these communities, argues the Nebraska Center. Rural communities are places where people choose to live and work. Respect those choices. Rural communities are strongholds of important social and economic values, ownership, self-employment, strong family orientation. Such communities provide essential support to farm families in schools, stores, health care, etc.. How will these needs be met if small communities are sacrificed in the push for new economic development?

The Nebraska Center challenges the view that small communities have no opportunities for development and that they must look to outside investments, industries and assistance.

What they offer is the familiar "do-it-yourself" formula. The specific goals and strategies must come from the community itself. There must be community involvement from the grass-roots up.

Local participation, local involvement of citizens has its cheerleaders; but it also has its nay-sayers. In July 1988, the Aspen Institute for Humanistic Studies held a seminar on THE IMPORTANCE OF COMMUNICATIONS AND INFORMATION SYSTEMS TO RURAL DEVELOPMENT IN THE UNITED STATES. When one of the participants cited Alaska as an example of successful citizen involvement in political affairs, two other participants came back with examples of lack of interest of citizens at the local level. Indeed, one man from Missouri said that "informed, active local participation" is a myth.

That's not an isolated, minority point of view. A major theme in American society today is the view that people are indifferent, passive in the political process. They don't really care. They have a sense of powerlessness. That's why the turnouts in local and national elections are generally depressing. People are interested in television, sports and they live from day to day, unconcerned about the great gamut of problems encircling planet earth. We have developed into a spectator society.

They don't care. I remember a program I did just after World War II when I was a writer-producer-director for CBS Radio a special one-hour program called THE EAGLE'S BROOD. Youth crime, juvenile delinquency as it was called, was rampant. I traveled around the United States for four months preparing the program, visiting jails, detention homes, the federal prison at Alcatraz, a prison farm in Louisiana, courts, and everywhere the cry was the same: "I don't care."

The problem seemed insoluble: nobody had any answers -- except a man I met in Chicago, in the Back of The Yards, the slaughterhouse district of the city. His name was Saul Alinsky, he'd been a welfare worker, a criminologist, he'd studied gangs, worked in prisons, written books. He said he had the answer. He called it Neighborhood Councils, grass-roots democracy, the kind the people in Back of the Yards had started. He defined a Neighborhood Council. It's all the organizations in any neighborhood getting together and saying "This is ours. This is where we live. If there s going to be change, improvement--for our children--for us--we're going to do it with our own hands, brains, money and imagination.

He took me through the neighborhood - a five and ten cent stencil of every slum in the world--American style. I met a businessman, a Mexican, a union organizer, a teacher, a district police captain, a veteran of World War II. They all spoke of the turnaround in Back of the Yards. They got rid of the idea that people don't care. They found that people did care, but their caring was buried so deep, they'd forgotten about it. They didn't know that anybody else cared. They didn't think that they could do anything about it. They found they could, not as individuals, but as an organized community they were dynamite. They found natural leaders in the community, people who never suspected they were leaders. They didn't have grand organization plans. They met informally, found friends, the cop on the beat, the frozen-puss banker, the local ward-heeler politicians.

They eliminated shoplifting, window-smashing and gang-killing. The ethnic minorities became friends. Children got orange juice to help overcome rickets. Housing violations were corrected. I was convinced. I had seen the evidence in my tour of the Neighborhood. When it was over, Alinsky said to me: "It's a windy world, my friend, One small fire won't survive. You've got to have lots of little fires--reaching out across the mountains and plains and rivers to make one big fire--the fire of an aroused democratic citizenship sharing in their government."

Neighborhood councils are still the dream of citizen activists in slums and in rural areas. In fact, in my view, the Nebraska Center for Rural Affairs applies the Back of the Yards Philosophy of do-it-yourself to rural areas. So does the Big Sky Telegraph which has begun its career in the field of rural education. But even in its first year of operation Telegraph is reaching out to become a stimulus for economic development. It has provided a special on-line service connection for the seven county offices of the Headwaters Resource Conservation and Development Project in Southwest Montana. known as RC&D. The RC&D is not a Federal or a State program but a non-profit organization which starts from the grass-roots and looks to local leadership. It draws people together, coordinates their ideas and efforts for economic development, provides technical assistance and helps to get financing for the use and development of natural resources.

As Big Sky Telegraph continues to expand in education and economic development, it might take a closer look at a successful grass-roots operation in the West River area of South Dakota. A rural school and community development project out there is experimenting successfully with integrating economic development directly into the school curriculum. I find it interesting that this rather radical experiment is taking place in South Dakota, a state with one of the lowest salary rates for teachers in the United States. In its second year, this Black Hills project comes out of the Mid-Continent Regional Educational Laboratory (McRel), in Denver, Colorado.

The idea is simple: redesign the school curriculum to give students real world entrepreneurial skills which will help them start their own small businesses and remain in the community after graduation instead of leaving to seek jobs elsewhere. Selected teachers work with students. Together they do economic base studies and "consumer needs" surveys. Student business plans are reviewed by a Local Advisory Council. South Dakota's Governor has put $10,000 into a FASTRACK program which has been fattened to $25,000 from the South Dakota's Bankers Association. In a telephone conversation with Dr. Toni Haas, in Denver who runs the McRel project, I learned that originally there were 8 sites, there are now 7, 4 are doing well and 3- ho hum.

The first loan went to a student who owns and operates a driving range at a new golf course in Lyman, South Dakota. In Belle Forche, South Dakota, students run a business called THIS, Ltd. It runs a twice-a-week radio show on a local commercial station called HEAR THIS, a restaurant stand called EAT THIS, and WATCH THIS, a dinner theatre. On the drawing boards is a T-SHIRT printing business called WEAR THIS. My first thought when I read about the program was oh-oh, here's a new brand of vocational education. But Dr. Haas, who is here attending this conference, quickly assured me that the program not only did not interfere with the regular curriculum but actually enriched and expanded it.

There is one unbendable guideline. Student-created businesses must serve real needs. Some enterprises are profit-making, some are intended to be not-for-profit community service enterprises. Advisory Council businessmen brainstorm with the students, critiqueing their plans. You might have a banker, a CPA, a local lawyer who talk about limited partnerships, sole proprietorships and personal corporations. They provide reality checks on unrealistic expectations.

Alinsky in Back of the Yards said that one small fire is not enough: you need many small fires coming together into one big bonfire. Big Sky Telegraph is one small fire in Montana. The Center for Rural Affairs in Nebraska is another. The Black Hills Special Services Cooperative in South Dakota is still another. There must be dozens of other small fires generating excitement in the Great Plains states. These are the pioneers showing the way to the 21st century.

Why not bring them together? Let the Telegraph with its primary emphasis on schools link up with the entrepreneurial training of South Dakota, and let South Dakota link up with the electronic interconnection of Big Sky Telegraph. And let Nebraska come aboard too.

It's easy to prescribe it in words, of course. It's much more difficult actually to do it. But it provides a goal, a vision towards which to move. The goal is the linkup of education and economic development -- in the lives of western youth. Economic revitalization is important for

Montana, but its real future is in its children, in their self-image, in their skills that will equip them to be citizens of the Information Age. In mastering the tools of electronic networking they will be preparing themselves to be at the center and not the periphery of the new global economy. In acquiring entrepreneurial skills they will be prepared to contribute to that economy. They will be learning the lessons of inter-dependence, co-operation, integration and autonomy. They can choose when to be at the center and when to be at the periphery --distanced from the turmoil of great cities and cherishing the intimacies of wildlife and nature.

The virtue of integrating Big Sky and entrepreneurial training in the schools is that it gives electronic networking a powerful meaning. By itself, electronic networking is a tool. It may be a novelty in telecommunications but unless it has a reason that makes sense in a person's life, the novelty quickly wears off. Likeham radio or CB talk, it can become a ritual practiced by amateurs. To use the Telegraph as a tool for introducing the children to living in a global economy is to give it a powerful reason for being. It enhances their self-esteem; it allows them to become resources for themselves and for others. The formula is simple: if you want to re-vitalize Montana's economy, revitalize the education of your children.

Every forward thrust of a society needs leaders. I know Frank and Regina Odasz--they are natural leaders. I know Dave Hughes who helped them set up The Big Sky Telegraph. I've talked to Philip Burgess of the Center for the New West on the telephone and to Lewis Robinson of the Montana International Trade Commission. They are natural leaders. There are others whom I have not had the pleasure of meeting. But if they can manage to work together to integrate electronic networking with entrepreneurial education, they will be laying the groundwork for the leaders who will emerge tomorrow among the ranks of the children in the schools today. It may be that tomorrow's leaders won't have to leave Montana to find jobs. They may want to leave, but if they prefer to stay there will be jobs for them here.

And what about people who have already left the state because of its declining economy? Are they permanently lost? Is it possible that they would make a U-Turn and come back? U-Turns--that's a name they use in Japan for young people from rural areas who left for work in Tokyo or Osaka and then returned to live and work in their hometowns. I met a man who made such a U-Turn in Japan some years ago. His name is Kinji Yahata. He lives in a town called Oyama in the Oita Prefecture in Kyushu, Japan's southernmost island.

25 years ago Oyama was the second poorest city in Oita. Average education was low; there were no job opportunities.

Many young people left for the big cities, Osaka and Tokyo. Yahata graduated from Keio University in Tokyo,one of the best in Japan. He took a degree in Sociology. His father was Mayor of Hitagun, a neighboring city to Oyama. After Mr. Yahata graduated from Keio University, his father asked him to come back to help him in his administrative duties. He worked for eight years improving the agricultural income of the area. Then he resigned and began to work independently, raising apricots, plums, lemons and processing these foods. But labor was insufficient and the weather unpredictable. He harvested only once a year, and he wanted to find a product that provided a steady income the year round.

He did a market survey, analyzed the local rainfall and climate compared with other regions in Japan. After considering five or six possibilities he narrowed his choice to one: he would raise a special crop of mushrooms. He started a collective with six neighbors. The other neighbors didn't share his vision. Now 160 households depend on Yahata's thriving mushroom business for their livelihoods. In choosing his product, Yahata decided to depend only on local resources. He would import nothing. His patented process for raising a special kind of mushrooms requires sawdust. The local sawmill had plenty of sawdust, which they were glad to let Yahata scoop up, free of charge. In other regions mushroom growers pay $20,000 a year for sawdust. The grateful sawmill owner sends him liquor twice a year in thanks.

Another man who made the U-Turn in Japan appeared a few weeks ago on a CBS-TV newscast. He, too, came from a rural area, and like so many other young people, he left home and found work in Tokyo. But he didn't like the crowds, the headlong pace of life in the big city, and he yearned to go back home. But what could he do? There were no jobs back home. Then one day he noticed that small blades of grass grew in the cracks of the concrete of Tokyo's sidewalks. He observed that Tokyo residents would gently lift up the blades of grass, take them home, and put them in pots so they would grow. So hungry were they for a small wisp of the open countryside.

Yearning for the good life, he had an idea. He made a U-Turn, went back home and started a greenhouse business in which he potted small plants and shipped them to the Rokyo market, where the cityfolk bought them as fast as they could. Now he uses a computer to keep in touch with market conditions in the big cities. How many young adults are out there in our big cities who would trade their lives in metropolis for a chance to make the American U-Turn?

Montana is looking for a turnaround in its economy. That's what this conference is all about--to share ideas and to stimulate the search for that turnaround. It might be helpful at this point for you to make a U-Turn in your own thinking to your own historical past. Look back with Walter Prescott Webb, in his study of the Great Plains, to three stories which demonstrate that the Rocky Mountain states have a tradition of confronting apparently insuperable obstacles and of overcoming them, to establish a way of life built on cattle-ranching, farming and mining.

Today your problem is no longer local. It is how to fit into an emerging, inter-dependent global economy in which land, capital and minerals will no longer be the true wealth of nations. The real wealth of a service economy is information. Should you integrate education and entrepreneurial training for your children? Should you diffuse the innovation you have here in the Big Sky Telegraph throughout the Great Plains states? These are questions no Easterner can answer for you. You'll have to do it yourselves, continuing into the 21st Century the tradition of your past. Only you can control your own destiny. But to do it, you'll have to make the biggest of all turnarounds--the turnaround in your own thinking. That's the real Turnaround in the Big Sky.

A chapter from: Empowering Networks:
Using Computer Conferencing in Education,
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Grassroots Networking On Big Sky Telegraph: Empowering Montana's One-Room Rural Schools

By Frank Odasz, Asst. Professor of Computer Education
and Director of Big Sky Telegraph (C) 1989

The Big Sky Telegraph's mission statement is: "To empower rural residents through the sharing of knowledge access skills by rural teachers." This goal builds on the fact that rural teachers have long served the role of information specialists in rural communities.

The original objective of the Big Sky Telegraph project was to link 114 one room schools in Montana through a multi-line microcomputer network for peer information sharing and the distribution of resources to rural schools.

This objective was implemented by providing modems to rural schools, teaching how to use them economically, and developing resources for efficient circulation among the schools.

Currently, Big Sky Telegraph offers electronic mail, conferencing, educational databases, library access services, user-maintained information menus, online telecommunications classes, and an educational software preview loan library (coordinated by electronic mail.)

Montana's rural schools are continually under threat of consolidation, even though educational research shows smaller class size, multi-grade learning, integrated lessons, and increased interpersonal attention to be more conducive to superior education than the mass education approach necessary in larger schools.

Telecommunication literacy increasingly appears to be the best means by which rural communities can succeed in rural economic development. Dwindling financial resources for many community services mandates better use of information technology for the survival of our rural communities and cherished rural lifestyle.

US West and the M. J. Murdock Charitable Trust provided $106,000 to the Western Montana College Foundation for the project. A generic 386 supermicrocomputer with seven modems for seven phonelines was purchased. Xenix for the 386 was the operating system, Foxbase was the database software (dbIII compatible) and carefully customized Xbbs conferencing software provided our unique easily teachable conferencing software. The cost for the software and hardware was $15,000 for a system capable of expanding to thirty-two phonelines and handling thousands of regular users.

Two quarter-time staff were in charge of the project: a director/system operator/instructor and a resource coordinator. Technical support and custom programming were provided by consultant, David R. Hughes, remotely by modem from Colorado Springs. Other part-time help was added as usage grew.

Big Sky Telegraph went online January 1, 1988. In rough figures, over the first year and a half, 17,000 calls were made to the system, 10,000 messages left by some 500 persons. Over one hundred schools have been online in some capacity with 150 individuals being regular users of the system.

Ten objective-based lessons, received over a five-week period, consisted of the mastery learning online class format. A class packet with software instructions, a syllabus, and the first three lessons was sent to each teacher. All instruction was received at the teacher's location, at any time convenient. By the third lesson the teachers learned to "capture" the remaining lessons directly from the Telegraph system. A high degree of interaction was possible between teacher and student through online messaging.

The online class focused on the generic online skills necessary to call any of the 13,000 bulletin board systems (bbs's) nationally. Calls to other online systems were a requirement of the class. Library resource requests and participation in a software preview loan library were also required.

Two 800 numbers provided ten hours of free connect time per rural teacher during the five week online class. Teachers were expected to pay their own phone costs after completing the class.

* Ten hours at $16/hr (prime time rate) equals $160
* the one credit class charge per teacher is....$75
* the cost of the modem was.................. $129

Total cost per community/rural school..........$364

Each teacher who volunteered to take the one credit online class was given a modem to use with the school's existing microcomputer. Prometheus 1200A Internal Promodems were used at a cost of $129 for both modem and telecommunications software.

The total cost for providing training in online knowledge access skills to a rural community through a one credit class offered to the local rural teacher AND providing a modem was $364.

During the first year and a half, seventy teachers completed the online class. Several had never used a computer before, even though there was one in the classroom.

Voice calls were used to offer encouragement and work out complex questions or problems. Some teachers needed their confidence boosted regularly; others worked through all ten lessons with barely a question.

Two thirds of the rural schools invited to participate in the project had microcomputers. About one third of these rural teachers expressed immediate interest in the class. Computer fear was an obvious inhibitor as was the time available beyond the teaching duties. The mastery learning format of the inservice training course, and the need for recertification credits, were prime motivators, along with the promise of easy and continuing access to educational resources and to other rural teachers.

Interactive computer conferencing between teacher and student, and between students in a public or private message format was used initially in a question/answer format. Students learned that if they could articulate a specific question, a quality answer would be there the next time they called.

For instance, when stuck on how to save online information to a data disk the teacher would list the steps attempted and the results. The instructor could then identify the missing or incorrect step in any sequence of procedures and get the teacher going again. This form of interaction is an acquired skill centered on written expression.

Messaging between students and requests for resources from various resource providers are required class objectives. Public postings of resource needs and teaching tips were encouraged. Anyone can message anyone, anytime, from anywhere.

The biggest problem with teaching online skills is that the online medium of communication is significantly different, conceptually, than voice calls or the postal service. The implication of being able to communicate with anyone in the world, anytime, for any reason, from the keyboard in a rural school, can be overwhelming.

Minimizing the amount of time required to communicate with given individuals effectively allows regular communications with a larger number of people than with other media. This "superconnectivity" is but one example of the numerous subtle advantages of the medium often not immediately clear to newcomers.

Telephone tag effectively prohibits up to 50% of the phone calls between busy persons from being connecting, versus 100% through electronic mail. Time lost to polite socializing is minimized as well, increasing the number of persons communicated with per unit time.

Being "online" is an experience first and foremost. There is no substitute for first hand experience. Most people do not really understand the advantages the media offers until they actually send and receive messages by themselves. Even then they only begin to understand the vast potential of their new resource.

STAGES:
We found four identifiable stages to learning online skills:

- * Uncertainty
- * Insight
- * Internalization
- * Enlightened expectations.

At the first stage the teachers often experiences self-doubt and self-deprecation as to whether they will be able to master the basic computer skills. A very shallow understanding of the potential benefits is common at this stage, though there is the general impression that there are advantages. For the individual at the "uncertainty" stage, it is important to keep the instructional tasks very simple with a mastery learning format. Easily obtainable objectives are necessary to build confidence, as well as encouraging messages whenever possible. Technofear and related ego-protecting excuses are strongest at this stage.

Often a teacher will take many months to warm up to the idea of going online, as if preparing subliminally for a major change in behavior. It is important for the teacher to feel in control and not forced to learn online skills. Once proving that the teacher CAN communicate with peers online, there is a surge of optimism.

At this "insight" phase the teacher accepts that telecommunications skills are not beyond reach and begins to see an increasing number of ways to benefit. Promises of regular use are common. Often this is a plateau of learning and some teachers find their old habits pull them away from incorporating online skills into their daily routines. "I don't have the time," is a frequent excuse which shows that the timesaving advantages of communication online are not yet clearly understood. The fact that better resource access will save class preparation time for the teacher has not been fully grasped.

The "internalization" stage is when, through regular use, the teacher begins to view the online skills as merely an extension of one's self and the teaching role. At this point "being online" is no more awesome than making a voice telephone call. Usage falls into a pattern of purposeful use. This is a subtle, yet crucial step: when the external promises of telecommunications become part of one's internal reality.

After a teacher internalizes the online experience and becomes a regular, even casual user, there is an acceptance that this medium has even greater potential benefits and the fourth stage, "enlightened expectations," begins. Now the real potential begins to percolate deep down in the teacher's consciousness and serious questions as to what else is possible begin to arise.

At this stage the teacher begins to make an internal commitment to fully pursue the potential of the online mode. This may be a year or more after initially going online. Willingness to serve as an online resource person, to tutor others online, or even to create and teach classes online for other teachers, is common at this ultimate stage of enlightened expectations.

The need for initial person-to-person contact, whether face-to-face, though voice telephone calls, or through electronic mail, cannot be overemphasized. The high-tech, high-touch principle is very prominent. Group and peer-teaching opportunities are encouraged when a high degree of anxiety is present. Self-motivated teachers require only access to the lessons.

Bearing in mind the considerable conceptual growth concerned with these stages, a teacher's initial online experiences must result in an immediate tangible benefit to warrant future calls. Our response to this need was to post a list of quality copyrighted software online and instruct the teacher to request three software packages in a message. The selected software packages are then sent to the teacher for a two-week loan period. $10,000 was spent on a quality educational software preview loan library to initially attract the teachers and to demonstrate the efficient distribution of resources, using electronic mail, to resource-poor rural schools. Messages were used to conveniently inform a teacher which school requires the resources next, effectively keeping them in rotation among the schools throughout the semester while minimizing the costs of returning them to Western for remailing. Science kits, instructional videos, Christmas plays and other resources were quickly added to the resource distribution program.

Many formerly computer illiterate teachers demonstrated avid enthusiasm after reviewing, many for the first time, quality software. We were surprised to find our software loan library served as an effective, economical, ongoing form of painless instructional computing inservice.

School boards typically feared phone costs would grow out of control, despite assurances that $5/week would be the ongoing phone cost. One twenty minute phone call at $16/hr prime time rates costs roughly $5. If messages and text are captured quickly for offline reading, and long messages are written offline for later transfer at four pages per minute, up to 80 pages of text can be exchanged during one twenty-minute session. The usefulness of this information becomes the issue and the major focus of the Telegraph's function. Teacher submissions are encouraged.

In contrast, school boards did not flinch in regard to mailing costs as if they were more controllable or necessary than use of the telephone.

As a rule, school boards understood the potential of being "online" only after the teachers demonstrated the system as part of their online class. Most people do not understand online communications simply by hearing about it. First hand experience is very important before the "lights" come on. The typical response to a live demonstration was enthusiasm by school board members, often resulting in the purchase of printers or extra disk drives to support the teacher's online efforts.

Big Sky Telegraph's motto is "By educators, for educators." An open access policy defines it as a true public system. No one is turned away. An $10/$15/$20 sponsorship fee for educators, community service organizations and business offices, respectively, includes participation in the resource distribution programs and specific advanced features such as advanced conferences and global messaging.

Ongoing costs to a school would be:

* $5/week phone charges times four weeks/month	$20
* $10/month sponsorship charge	$10
Total monthly costs per school	$30

$30 per month is the total cost for all services per school, not counting mailing costs. For a ten month school year that would be $300 per school per year. Many schools need a year's lead time to work this into school budgets so the initial response to the sponsorship option was low, but picked up over time.

The biggest problems were primarily technical concerning the correct hardware and software settings of the modems, printers and telecommunications software. We recommend sending the modem and telecommunications software preconfigured for the teacher's specific computer and printer type. Getting access to a phoneline is not as big a problem in one-room schools as it is in larger schools since most one-room schools have a phone handy.

Those teachers without wordprocessing experience had a more difficult time conceptualizing their use of the computer for communications due to their struggling with such basics of using a computer as how to save files on a floppy disk.

Noisy phone lines cause alien characters to appear on the computer screen, often causing concern by the teachers. Ignoring the "extra" characters or calling back and hoping for a cleaner line are the only solutions. In extreme cases of line noise teachers would be unable to connect at a transmission speed of 1200 baud and would have to drop back to 300 baud. Line noise prohibited some schools from use of the system while others became discouraged. Line noise tends to come and go, depending on weather, sunspots and anomalies in the phone system. About 20% of the teachers reported noise problems sufficient to affect their use of the system.

Teachers having completed the online class are often called on to demonstrate their skills to the local community or to help other teachers in the region get online. This we encouraged.

The online class emphasizes the role of community information specialist with the teacher serving as a link between the rural community and statewide resource persons.

Rural teachers are the logical contact persons for such a rural community outreach project. Historically, the rural teacher has been the information hub of a rural community. Rural teachers from resource poor schools understand the need for better informational resources and have shown great patience and perseverance in learning how to access information.

Rural teachers tend to be self-starters and far more creative, perhaps of necessity, than other teachers. The success of Big Sky Telegraph is very much to be credited to the patience and perseverance of these pioneers of rural America's educational frontier.

Common quotes from rural teachers beginning the class are; "I must look really stupid, but don't give up on me!" and "I'm old and I'm slow, but I'm going to learn this!" Those that do stick with the course, without exception, win out in the end. Patience and perseverance are the keys to learning in our increasingly technological and rapidly changing world. There is a striking contrast in willingness to brave a new learning experience between rural teachers and teachers from larger public schools.

If the prime role of teachers is serve as role model on how to approach life, the rural teacher shows considerably more character.

As word got around about the efficiencies of online communications, and that a hundred communities were "online" through the local rural schools, other groups expressed interest in getting online. Our strategy was to vend excess communications services to interested individuals and organizations as part of our effort to become economically self-sufficient while broadening our base of resource providers.

A generic problem in rural communities, both for business and education, is that no comprehensive listings of available services, resources, and expertise are available. Telegraph provides these listings and the efficient means for matching needs and services in a format operated by the grassroots individuals themselves.

An online system which allows organizations to share information with rural schools and communities can easily become a "grant machine." Numerous organizations have been able to easily find funding for projects that involve the use of telecommunications to disseminate information to an established base of over a hundred communities.

Small grants have been awarded for online instruction to the Anaconda Job Corps, the Women's Center of Dillon, and the Women's Economic Development Group (WEDGO) of Missoula. In addition, the twelve women's centers of Montana received funding to learn microcomputer telecommunications to empower their efforts.

The Headwaters Resource, Development, and Conservation Organization is a grassroots leadership group presently linking offices from rural towns in seven Southwest Montana counties through Telegraph. Recently they received a grant for an online Agricultural Incubator Without Walls to serve the same seven counties. A fulltime director/circuit rider was hired and supplied with a laptop microcomputer for "on-the-road" communications.

Several disabled individuals are collecting information on use of telecommunications and technology for gainful employment in the "ReAbled" conference. Trained and ready to train others online, these individuals are still looking for funding to broadly share their newfound skills. A "Work-at-Home" conference has been created to collect and disseminate the rapidly growing body of information on using microcomputers and telecommunications to work out of the home.

Western Montana College's rural education center received a large grant to promote drug education in rural schools. Telegraph will be used to help share this information.

Western's graduates will use telecommunications to communicate with faculty and campus resource persons during their first year teaching, and undoubtedly beyond. One quarter of Western's faculty is currently online actively serving as resource persons, at their convenience.

English 101 was taught "online" to advanced students from the local high school as well as to students at Western. As expected, more and better student writing was produced than in a normal face-to-face English class. Students learned communicative writing by using the medium to "talk" with both the teacher and other students. Students used nomdeplumes to allow nonsocially biased evaluations of each other's writings.

Using reading and writing, interactively, involves students more integrally in the content of the class. Students must participate and interact as part of the instruction; no one can just "sit" passively in the back of the room, as in a normal classroom. There are subtle but clear advantages to an online class. More interactivity between student and teacher occurs than in a face-to-face class. The interaction tends to be more mind-to-mind and less socially oriented. An online class requires more organizational and interactive effort on the part of the teacher and self-motivation and self-discipline on the part of the students.

A library media specialist for the Office of Public Instruction at the State Capitol created and taught a one credit class to individuals statewide entitled "Information Access Skills for Rural Educators." Two master teachers, one in science and one in home economics, are planning to create and teach online classes.

A grant for $5,000 was received by Western from the Intermountain Community Library and Information Services (ICLIS) project to create an online version of "Computer Literacy for the IBM," to be offered through community libraries in four states: Montana, Wyoming, Colorado and Utah.

The Montana State Library is bringing five departments online, the Special Education Co-ops of Dillon and Deer Lodge are online, and the Forest Service is represented by Smokey Bear, who leaves penpal messages for rural students.

Individuals and organizations have the option of creating their own information menus and updating them remotely. Computer supplies and desktop publishing services are available from individuals who post their business services in this manner.

As non-educator use grew, a completely separate bulletin board system was created to be run on the same hardware. Presently we now have two systems working in partnership: one for educators and librarians and one for rural economic development, agricultural and community services. Big Sky Telegraph can continue to clone itself as the need dictates.

Functioning as an online co-op, Big Sky Telegraph effectively provides individuals and organizations with an economical means to benefit from microcomputer telecommunications.

Our choice of a supermicro over a mini or mainframe computer is one important reason why Telegraph has succeeded. To avoid compatibility problems and to have the largest amount of quality software tools available for system design, we chose a generic 386 microcomputer. Any micro with a modem can connect with the system and the online databases. This is often not easily achieved on larger systems.

There are many misconceptions about the proper cost of an online system. The older the technology is, the more expensive it is, and the less flexibility it has. Administrators often tend to be swayed by large established firms to accept expensive "solutions" that are often five years out-of-date.

It is no small point that Big Sky Telegraph is staffed with two quarter time persons with no formal computer science training. However, Telegraph's staff did have writing skills, interpersonal skills, and considerable microcomputer experience. A fulltime, expensive, dataprocessing professional was not required.

Many educational online efforts have failed because the needs of teachers were not straightforwardly addressed in a user-friendly manner. A common mistake is to assume teachers will be enthusiastic about the potential and will overlook the details of the technical interface. Even a couple of unnecessary technical steps can mean a significant number of teachers will find a given procedure too tedious to attempt again.

Like other public and quasi-governmental activities, it was anticipated that Telegraph might be hindered by the institutional politics and turf battles that are a common pitfall of telecommunications projects. Another major reason for Telegraph's success is that a bottom-up approach, working directly with the rural teachers, allowed the project to grow unfettered by politics. The system was operating successfully before it had political exposure.

A common misperception is that because "information is power," ownership of an online system will translate to political power. Unless the intent is to restrict access to information, the "power" is in the use of the medium, not in ownership of the hardware. Greater connectivity is not a given through ownership; it comes though direct use of the advantages of the medium. Administrators tend to delegate messaging to office staff, which is similar to sending a secretary to an important business meeting. The advantage of direct convenient contact between principle parties is missed.

Possibly because technofear is often very high among administrators, who often don't know how to use a keyboard, computer or modem, they repeatedly proved the least likely to show interest in communicating online. Telecommunications literacy among administrators is becoming a problem increasingly because without direct experience, one usually does not understand the online mode of communication well enough to administer its use intelligently.

The reported higher cost of rural schools currently driving consolidation issues is primarily due to the cost of the administrative overhead, which could be reduced drastically through the use of telecommunications, provided administrators are as trainable as rural teachers.

The role of the system operator (sysop) is one of supportive instructor, self-initiating communications with dozens of persons on a regular basis. Involving persons integrally in the use of the system is a subtle role, one not served by the usual data processor's mentality. Sharing the sense of ownership of the system with others is paramount. Creating a sense of purpose and community, the sysop awards the roles of online tutor, community information specialist, resource person and statewide expert to as many as possible.

Dozens of statewide resource persons are formally listed with their specialty, ready to answer questions from anyone. A trained rural teacher has only to pass on information requests from community members, and retrieve responses to function effectively as a community information specialist.

There are many frustrated, good-natured persons in our society who lack a convenient and reliable means to help others. The socially safe and logistically convenient online medium opens exciting new possibilities for tapping this unused human spirit.

Regional 386 systems can be set automatically to exchange messages with other systems, allowing for greater economy of long distance messaging. Fido for IBM compatibles and Fredmail for Apples are two bulletin board programs that can be run at the local level at no expense to local users, and can be set to exchange messages with other similar systems statewide or nationally through an automatic phone call made at the lowest nightly phone rates. Telegraph can be used to pass such messages on to global networks, effectively opening global markets to rural communities. Telegraph currently has a direct unix-to-unix communications protocol (uucp) link to 8,000 systems worldwide. Messages have been conveniently and economically exchanged through an educational system in Tokyo, Japan.

Anyone who wants to learn how to setup and run one's own regional network, following the Telegraph model, may soon have the option to take an online class entitled "Grassroots Sysoping: Empowerment of Rural Communities." This concept is now in the grant request stage.

Big Sky Telegraph is a virtual community, defined by common interests in educational sharing and community development, not by physical location. Like-minded persons are invited to call Big Sky Telegraph via modem at 406-683-7680, (parameters 1200 baud, 8N1.) Type "bbs" at the login for the Rural Teachers Network or "hrn" for the Headwaters Regional Network, covering rural economic development and community services.

MONTANA EXPANSION

OF

BIG SKY TELEGRAPH:

A PROPOSAL

TO THE

US WEST EDUCATIONAL INITIATIVE GRANTS PROGRAM

SUBMITTED BY

WESTERN MONTANA COLLEGE

OF THE

UNIVERSITY OF MONTANA

WRITTEN BY

FRANK ODASZ, DIRECTOR OF BIG SKY TELEGRAPH

NOVEMBER 1, 1989

Proposal for Montana Expansion of Big Sky Telegraph

ABSTRACT

Western Montana College of the University of Montana proposes for Big Sky Telegraph to expand its training program teaching online knowledge access skills to rural educators. The need exists to disseminate modems, training and release time to rural educators to allow them to pass on this training to rural residents for the purpose of efficiently matching vital community needs with statewide resources and expertise.

The need exists to increase the number of educators able to access online information, to increase the number of online resource providing organizations accessible on Big Sky Telegraph, and to increase the range of online course offerings for both educators and community members.

Following almost two years of successful operation, subscriptions are currently supporting 25% of the operating expenses of the Big Sky Telegraph project. Projections are to reach 100%, or $2000/month, by June 1991.

Big Sky Telegraph is singularly unique in the population it serves, the focus of its online courses, and the range of features and services it offers rural educators and entrepreneurs. There is a very real need to fully develop this model in Montana for future replication in other rural states and developing countries.

Note that Appendix D: State's Progress Reports highlights the rapid progress being made toward creating similar online systems by state government and private groups in Nebraska, Wyoming and Colorado. The opportunity for US West to introduce these state run systems, as recommended in the original Ruralnet concept paper submitted over a year ago, has probably passed. Budgets demonstrating economical replication of Big Sky Telegraph in other states are included along with updates on the interested institutions for hosting such systems. The multi-state proposal would complement this specifically Montanan expansion project.

STATEMENT OF NEED

Montana's rural schools are continually under threat of consolidation, even though educational research shows smaller class size, multi-grade learning, integrated lessons and the increased interpersonal attention of rural schools to be more conducive to superior education than the larger school mass education approach.

Information access technology is proving to be the means by which we can preserve the quality and economic viability of our rural schools, and through the schools, support the knowledge access capabilities of the local rural communities.

Big Sky Telegraph supports rural educators by providing opportunities for educators to work with one another, to consult with college faculty and statewide resource persons, and to efficiently access the educational resources necessary to provide for higher quality instruction.

Telecommunications education increasingly appears to be the emerging means by which rural communities can succeed in rural economic development in the information age. Exciting options are emerging for quality employment from ANY location through text-based telecommunications.

Dwindling financial resources for many community services means better use of information technology is necessary for the survival of our rural communities and cherished rural lifestyle.

The recently published book "Rural America in the Information Age" by Edwin Parker, chronicles the dilemma: If rural America doesn't learn soon to utilize telecommunications to keep pace with urban areas, rural America will continue to fall further behind economically, with disastrous consequences. Philip Burgess, from US West's Center for the New West, is quoted extensively urging support for grassroots innovations and leadership efforts.

Because the role of rural educator is inseparable from the full range of rural community life, Telegraph provides rural economic development services, an agricultural incubator and community services support and information. Any rural educator with access to Big Sky Telegraph can assist community members in efficiently connecting with statewide expertise regarding any potential need.

An outline of current services, and documents detailing the history and successes of Big Sky Telegraph are included as appendices.

OBJECTIVE ONE: Knowledge Access Skills Training

Big Sky Telegraph will extend its outreach to empower rural educators and selected individuals to serve as circuit rider/trainers to provide regional demonstrations and training for rural educators and community members. The circuit riders will work with regional trainees and will be accessible online for continued training and support. Training members of regional resource providing organizations will be a key goal of the circuit riders.

Regional, part-time, circuit rider/trainers will be provided:

1. Travel expenses and stipends for the time spent training.

2. Loaned laptop microcomputers and demonstration equipment for communications, training, and demonstration purposes.

3. Inexpensive modems to be installed in existing community microcomputers.

The stipends will be $100 per day training, plus travel expenses. Three hundred training days and travel expenses averaging 150 miles per trip, at 21 cents per mile, are included in the budget. The stipends can be partially used by rural educators to pay for substitute teachers to provide release time to travel and share their telecommunications expertise through face-to-face meetings and demonstrations.

The primary regional trainees will be rural educators, but training will also be offered to the organizations listed below. The most motivated and potentially effective individuals in selected communities will be given training priority.

104 schools and organizations will be selected to receive modems and training. The following breakdown is suggested:

40 rural schools, 10 of which are to be Native American Schools
15 public libraries in rural communities
15 rural economic development offices
12 Soil Conservation Service or Agricultural Extension Offices
12 women's centers
5 organizations for the handicapped
5 rural health clinics/offices

TIME FRAME: A two year time frame is proposed for all objectives.

Beginning January 1, 1990, circuit riders will be selected and matched with the above sites. Selection of the individuals to receive training from the above schools or offices would begin with the goal being half the above sites receiving training by January 1, 1991. The remaining sites would receive training by January 1, 1992. Many qualifying organizations have already volunteered to receive the training.

EVALUATION: The success of objective one: Knowledge Access Training will be determined by the number of individuals and organizations continuing to use Big Sky Telegraph after the training is completed.

OBJECTIVE TWO: Online Course Creation

New online classes and instructional opportunities will be created to respond to the statewide training needs of rural educators, librarians and community members.

The University of Alaska has the only other online system with online telecommunications instruction for rural teachers. Big Sky Telegraph has considerably more power and versatility and requires its own courses to teach the full range of its available services and features. Instruction relating specifically to Montana's available statewide resources, expertise and curriculum standards is necessary. No existing online courses would be appropriate for the needs of the Montanan population to be served.

Higher education institutions currently offering online courses include:

1. America Open University at New York Institute of Technology
2. Electronic University Network: Deanza College and a consortium of 6 other colleges
3. National Technological University
4. Nova University offers complete Phd programs online
5. Purdue University offers an online Executive MBA program and an engineering Master's Degree.
6. Connected Education Program from New Jersey Institute of Technology
7. University of Guelph, Ontario, Canada
8. City University of Belleview, Washington
9. Northern Illinois University
10. Western Behavioral Sciences Institute
11. University of Hawaii
12. New School for Social Research
13. International School of Information Management

Courses currently available on Big Sky Telegraph are:

1. Microcomputer Telecommunications for Educators, 1 credit

2. Computer Literacy on the IBM PC, 2 credits

3. English 101 and English 102, 3 credits each

4. Information Access Skills for Rural Educators, 1 credit

The following courses are recommended for development:

1. "Teleliteracy: The Next Big Step in Education," will include economical global networking, database searching skills and a review of the instructional advantages and disadvantages of the various distance learning technologies available today.
2. "Instructional Computing," will provide hands-on, on-the-job instructional computing inservice for educators, and librarians, focusing on effective use of instructional software for both individualized or classroom use. Telegraph's extensive software library will be the resource supplier for this course.
3. "Information Age Rural Entrepreneurship and Community Development," will be created for both community members and educators. This course will cover information age rural entrepreneurship, telecommuting, and meeting a community's economic development and humanistic information needs in a rapidly changing society and a global marketplace.
4. "Teaching Effectively Online" will be created for educators and individuals interested in creating and teaching their own online courses.

Each course will require 166.6 hrs of development, including the pilot teaching, at a salary of $30/hr, following the model of the "Computer Literacy for the IBM" online course developed for the Intermountain Community Library and Information Services project (ICLIS) last year. A materials budget of $500 per course is included in the $5,000 per course figure. Western Montana College

will make all decisions on who will create the courses. Partnerships with faculty from Western and other Montanan institutions will be sought out purposely.

These courses will be self-sufficient economically, taught through Western's Continuing Education Department at a rate of $75 per credit hour.

TIME FRAME: Work will begin on all four courses January, 1990 if qualified personnel are available. A pilot test of each course will be planned for Summer 1990 with the first formal offering of each course being available Fall Semester 1990. Copyrights will belong to the authors of the courses.

EVALUATION: The success of Objective Two: Online Course Creation will be determined by the number of students taking the new courses and by their written evaluations upon completion of the course(s). Independent evaluations will be invited.

OBJECTIVE THREE: Demonstrating Economical National and Global Information Sharing Through Local Community Networks.

The need exists to demonstrate existing techniques to broaden the variety and range of online resource sharing programs and resource databases available within the local calling radius of rural communities. Through a free local phone call, the economy and feasibility of local bulletin board systems linked through a "UFgate" system can be demonstrated which provide the means for economically sharing messages between systems statewide, nationally, and globally.

Local bulletin board systems can be established on existing desktop microcomputers with public domain software to provide free access to information and databases stored on the local systems.

These local bulletin board systems can then be linked through a central "UFgate" system to share messages and information with other local bulletin board systems, both statewide and nationally, as well as 8,000 systems globally at NO COST to the local community through nightly, automated phonecalls from the "UFgate" system. All incoming and outgoing mail will be efficiently exchanged through this single nightly phonecall. For example: An individual from Bearpaw, MT, could send and receive messages to and from Tokyo at virtually no cost through a local phonecall to a system at the Bearpaw School or local library.

Community-specific resource/talent databases, local information sharing benefits, cost-effective global educational and economic development communications opportunities will be showcased.

TIME FRAME: A minimum of five local bulletin board systems will be established and linked, as described, to communicate with other such systems. Two local systems, fully functional, will be the goal of 1990; the remaining three or more systems will be the goal of 1991.

EVALUATION: The success of this objective will be determined on the number of local bulletin board systems up and running by the end of the two year time frame and the degree of local use of each system. Success depends on the number of local computers available with hard disks and the degree of interest in running a local system by local personnel at the location of the community computer. The number of residents with modems and computers able to benefit immediately from a local bulletin board is expected to be small initially, but should grow once a local information system becomes available.

PERSONNEL

Personnel will consist of Frank and Regina Odasz, the original Telegraph team, funded to work half-time on the project while maintaining halftime positions as faculty at Western Montana College. In addition, one full-time technical support position is required as well as a retainer for Telegraph's technical consultant.

1. DIRECTOR: Frank Odasz will serve as director of the project and be responsible for: system maintenance, continued expansion and development, creation of new online courses, online instruction, and selection and training circuit rider/trainers.

2. RESOURCE COORDINATOR: Regina Odasz will continue to serve as Telegraph's resource coordinator expanding existing services, working with new resource providers, disseminating resources, and teaching as an online instructor.

3. MANAGERIAL/TECHNICAL MAINTENANCE: A fulltime managerial/technical maintenance position is necessary for technical maintenance and support of Big Sky Telegraph due to the escalating number of users on Big Sky Telegraph. This individual will create and maintain new online databases and information services. Creating, and maintaining remotely, the local bulletin board systems to be established in rural communities will also be a requirement for this position, along with maintaining the central office for this project.

4. TECHNICAL CONSULTANT: International Telecommunications Consultant David R. Hughes must be retained as consultant for the project for troubleshooting, continued development, and expansion of the system. His expertise is the single greatest contributing factor to the present success of Big Sky Telegraph.

5. CIRCUIT RIDER/TRAINERS: Educators, librarians and individuals who have demonstrated proficiency online and are enthusiastic about sharing their online skills will be offered $100/day, plus travel expenses, on a daily contract basis, to provide face-to-face demonstrations and training to selected regional trainees. These circuit riders will continue to tutor, support, and encourage, the regional trainees as they work through the online lessons, identify their specific regional needs, and begin their local training programs. Opportunities will be created for the circuit riders to receive additional renumeration for providing additional training services through Western's Continuing Education program.

BUDGET

Discussion: The main costs of this project are, of necessity, involved primarily with programmatic development and specific instructional tasks. Hence, personnel costs are higher than equipment costs.

PERSONNEL:

	Year 1	Year 2
PROJECT DIRECTOR, halftime for 2 yrs at $16,000/yr plus 23% benefits	19,680	19,680
RESOURCE COORDINATOR, halftime for 2 yrs at $14,000/yr plus 23% benefits	17,220	17,220
MANAGERIAL-TECHNICAL ASST., fulltime/2yrs at $18,000/yr plus 23% benefits	22,140	22,140
TECHNICAL CONSULTANT 10,000/yr for 2 years, no benefits	10,000	10,000
CIRCUIT RIDER/TRAINER'S Stipends 300 training days at $100/day	15,000	15,000
Subtotal................................	84,040	84,040

PROGRAMMATIC DEVELOPMENT:

Online Course Creation for original creation and pilot teaching:

Teleliteracy: The Next Big Step in Ed.	5,000	0
Instructional Computing	5,000	0
Information Age Rural Entrepreneurship	5,000	0
Teaching Effectively Online	5,000	0
Subtotal................................	20,000	0

EQUIPMENT:

UFgate system to economically link local bbs's	5,000	0
Telegraph expansion hardware, maintenance more incoming modems	10,000	5,000
Modems for schools, libraries and community public offices 104 * $130	13,520	0
Five loaner laptops for demonstrations and training: Toshiba 1200F's at $1500 each	7,500	0
Five overhead projectors and computer screen display units: $500 + $800 * 5	6,000	0
TOTAL	42,020	5,000

OPERATIONAL EXPENSES:

Office Supplies $500/month * 24 months	5,100	5,100
Travel Expenses for circuit riders	5,000	5,000
Resource development and acquisition	3,000	3,000
800 training time, two hours average use per day at $16/hr prime time rate for two years or $30/day times 730 days	10,950	10,950
Subtotal	24,050	24,050
TOTAL PER YEAR	170,110	113,090
GRAND TOTAL		$283,200

WESTERN MONTANA COLLEGE will provide:

	Year 1	Year 2
1. housing and overhead for the project	11,328	11,328
2. costs for incoming toll phone lines	4,800	4,800
3. half time salary for Frank and Regina	25,347	26,869
4. one full time work study position	8,352	8,352
WESTERN'S CONTRIBUTIONS TOTAL PER YEAR	49,827	51,349
WESTERN'S TOTAL CONTRIBUTIONS	$101,179	

BUDGET NARRATIVE:

Year one would expand Telegraph's capacity to include ten phonelines and would establish a separate "UFgate" computer to automatically call specific demonstration local bulletin board systems to drop off incoming messages and pick up outgoing messages, to and from national and global sources, thereby offering free national and global communications to rural communities for educational and economic development purposes.

The $5,000 equipment budget for year two would cover any equipment failure expenses and limited further expansion needs.

Office expenses include:

1. Outgoing online phone calls to glean quality information from numerous national and international online systems for redistribution online in Montana.
2. Xeroxing and printing expenses for the numerous required promotional flyers and instructional packets.
3. Frequent mailings of educational resources and instructionally related materials.

Current office costs at this time are very close to $500/month, even without this expansion project.

PROJECT EVALUATION

The success of this project will be measured by the number of new educators, community members, and communities represented online, their degree of system usage, the number of new resource providers online, the number of new online databases, the number of functioning local community information systems and the quality of the new online courses created.

See Appendix B: EVALUATIVE RESEARCH CONSIDERATIONS

APPENDICES FOR THE

BIG SKY TELEGRAPH MONTANA EXPANSION PROPOSAL

APPENDIX A: BACKGROUND INFORMATION

APPENDIX B: EVALUATIVE RESEARCH CONSIDERATIONS

APPENDIX C: WESTERN'S ECONOMIC DEVELOPMENT INITIATIVES

APPENDIX D: STATES PROGRESS UPDATE

APPENDIX E: RURALNET: ORIGINAL MULTISTATE PROPOSAL

APPENDIX A: BACKGROUND

Big Sky Telegraph is a grassroots telecommunications demonstration project linking Montana's rural schools with resources and other rural teachers region-wide. Big Sky Telegraph offers electronic mail, conferencing, educational databases, library services, free ERIC searching, a copyrighted software loan library and online training classes. Big Sky Telegraph was created through $106,000 in grants from US West and the M.J. Murdock Charitable Trust. Access to Big Sky Telegraph is free to all interested in rural education and rural community support.

On January 1, 1988, Big Sky Telegraph at Western Montana College went online to offer telecommunications training remotely to 114 one-room Montana school teachers via the existing microcomputers in the schools with the addition of a grant provided modem. Today over 70 educators have successfully completed the formal training. Previously, only two of them had ever used a modem. Over 100 additional rural educators have come online and are planning to receive the full online training. Big Sky Telegraph has created a "virtual" educational community across Montana as the educators have become linked together in their mutual exploration of the possibilities opened by information technology. Hundreds of other interested callers have "visited" from as far away as Tokyo, Japan.

In the initial 18 months over 17,000 logins were recorded from over 500 individuals. Seventy teachers received training for credit remotely. Over 60% of first time inexperienced callers found the system easy enough to leave a message during the first call. There are no known multi-user dialup services which have achieved this level of immediate utility. This can be credited to the selection of a technical consultant with proven expertise in grassroots telecommunications networks.

Each teacher represents a rural community and as part of the online course has demonstrated Big Sky Telegraph to the local community. Enthusiastic support has been the typical response by local school boards. The rural educator is the natural resource in a rural community for broad dissemination of training in the benefits of information technology.

Phone costs of as little as five dollars per week are enough to benefit from Telegraph's services. This project is becoming increasingly well known on global networks as a landmark success for rural educational, regional business, and community telecommunications.

Western Montana College has a nearly 100 year history of serving rural educational needs as its prime institutional mission. Western's Rural Education Center is nationally renowned and will be included in this outreach program. Title III funding has allowed Western to establish an unprecedented microcomputer/student ratio of 1:5. Western would serve as a lighthouse of online instruction and expertise, available anywhere, anytime, literally at the fingertips of rural learners.

Western Montana College currently offers the following classes online:

1. Microcomputer Telecommunications for Educators
2. Microcomputer Telecommunications for Business
3. Computer Literacy on the IBM PC
4. English 101 and English 102
5. Information Access Skills for Rural Educators (prerequisite: Class number one, above)

Western Montana College proposes to develop more online classes concerning basic literacy, progressive microcomputer skills, and teacher inservice online courses to serve the skills and training needs of remote rural learners. Western will aid the faculty at the sponsoring institutions in Wyoming and Montana in learning how to provide online instruction in their home states.

As a direct result of this training, the participating organizations will be expected to develop their own regional online networks and centers of expertise. These regional networks can then be linked to larger networks dealing with national and international markets, centers of influence, expertise, and services.

The following organizations currently are using Big Sky Telegraph to share resources or expertise:

1. Western Montana College Library
2. Montana Office of Public Instruction
3. Montana State Library (five departments coming online soon)
4. US Forest Service
5. Headwaters Resource, Conservation and Development Coop (connecting offices in seven SW Montana Counties)
6. Agricultural Incubator Without Walls Project (connecting offices in seven SW Montana Counties)
7. Twelve women's centers statewide
8. Special Education Cooperatives based in Dillon and Deerlodge
9. Technical Education Departments at Western Montana College and Northern Montana College
10. Small Business Administration

11. Montana State Department of Administration
12. Anaconda Job Corps
13. WEDGO- Missoula-based economic development for women group.

Two dozen individuals have volunteered to serve as resource persons in their areas of expertise. A listing is prominently displayed on the system.

A dozen librarians, three disabled persons, six business persons, and roughly 150 rural educators use Big Sky Telegraph regularly. Three to four first time callers per day is common. No one is denied access to Telegraph and the variety of participants is therefore quite broad.

Western has more microcomputers per student and is the only institution teaching online skills at the undergraduate level.

The Small Business Association and the Montana Department of Commerce supports current efforts for Telegraph to serve as online economic development system for Montana.

Though telecommunications pathways and technologies are evolving rapidly, telecommunications literacy among potential users is a major problem. Western is the only college to teach online skills at the undergraduate level in the Rocky Mountains. Further, Western is the only institution to offer college level classes via the online mode. Rural residents must be taught to use these telecommunications tools if the enormous expenditures on telecommunications hardware infrastructures are to improve educational opportunities in rural areas.

The rural educators of Wyoming and Colorado will be invited to receive the bulk of their training in the same remote delivery format as have Montana educators.

APPENDIX B: EVALUATIVE RESEARCH CONSIDERATIONS

Research on effectiveness of online instruction: formal study option: Among the most recent studies through the National testing service of the National Department of Education NO studies covered distance learning as shown in "Crossroads in American Education" Princeton, Feb. '89.

In the "Biennial Report Card on US Education," April '88, the first study ever on computer competence in the history of the nation was completed. Telecommunications and distance learning were not assessed in any way.

Hence, there is a very real need for quality evaluative studies regarding telecommunicated instruction. This grant includes seed funds for a formal, independent evaluation of the cost-effectiveness of education technologies used over the three years. The state sponsoring institutions and the U.S. Department of Education will be invited to participate in this evaluation.

Western Montana College has several qualified faculty members with experience in educational research. A study should be formally completed using this project's goals as a framework. This study would be of national and international importance.

Evaluative Research Option. $20,000

Understanding Video versus Text-based Distance Learning

Distance learning technologies have divided into two camps: video and computer. It is being recognized that both these mediums must work together if we are to arrive at the optimal distance learning system. The differences are fundamental, but complementary.

Our visual culture has been criticized for overuse of the television in education. Over-reliance on television is credited with being a partial cause of why high school graduates can barely read and write. Why then is there such a strong video bias to perpetuate this form of instruction? Marketing managers of the large communications companies have decided this for us. No comparative educational research has been done between these two mediums.

The tacit assumption behind video instruction is that the classroom is the optional teacher/student educational environment and that video is the best way to emulate this form of interaction. I oppose this assumption. Fundamentally very little individual teacher/student interaction takes place due to the innate logistical limitations of 20-30 students per one teacher over a 50 minute class period.

Video instruction, either interactive or passive, is generally high context but low substance, context being the culturally preferred face-to-face environment favored by Japanese and Latin American cultures. Computer conferencing is low context but high substance, and tends to be preferred by European and North American white cultures.

Computer conferencing involves the student at a deeper level than video instruction, exercising interactive reading and writing. The communication of ideas is in a more mind-to-mind format than video. Studies show memory retention during reading to be twice that of lectures or video delivered passive instruction, presumably due to the level of mental involvement in the learning process.

The optimal learning environment would be a hybrid system where visuals can be delivered via video and where student/student and teacher/student written interactions can take place beyond the time limitations of the classroom through computer conferencing.

Face-to-face - High Context and Low Substance
Computer Conferencing - Low Context and High Substance

Overuse of passive television instruction has produced a high context, low substance, national educational system, as the Blue Ribbon Commission's testing has shown. Arguably, even our last Presidency featured a President with a tv background who stressed appearances over substance. Video instruction too often stresses appearance and slick production techniques, being typically weak on substance.

Mass communications experts do not have experience in individual communications, or mind-to-mind instruction, hence their bias toward mass instruction over individualized instruction where teacher/student and student/student written interactions are emphasized.

Does learning via videoconferencing equipment owned by the school prepare a student for ongoing learning outside the school? The equipment stays at the school, which the student must eventually leave. By contrast, a personal computer can become an ongoing learning tool and a link to worldwide information resources.

Writing is independent of context and offers a mind-to-mind medium that television lacks. With electronic networks, the range is global and beyond the limitations of time constraints. Online courses tend to require more work, interaction, and involvement in the learning process than even the best classrooms. This is true for both teacher and students. While requiring motivated learners, the rewards of an online class can be far richer and longer lasting than mere lectures or video instruction. The written word is the foundation of literacy, culture and the evolution of thought. Online instruction builds written language and thinking skills in a way far superior to television. What television CAN provide are the necessary visuals and face-to-face interactions to supplement an online course. A hybrid distance learning system is inevitable.

Learning is hard work, NOT entertainment! Reading and writing involve fundamental thought processes above passive video viewing or social face-to-face interactions. It is through language that new ideas find form. Writing has the permanence that verbal interaction does not, writing is integral to thinking, and is not as ephemeral as off-the-cuff verbalizations.

VIDEO VERSUS ONLINE

by David R. Hughes, International Telecom. Consultant

There are many well-funded "distance-learning" projects based upon various broadcast (satellite, cable television) technologies. Extravagant claims are being made for the educational effectiveness of these techniques, their ease of use (some would say passivity of users,) and unit economy. Although there are serious questions among professional educators as to how effective such essentially one-way broadcast techniques can be, there has been far less development of two-way, interactive telephone-based educational networks in the western United States, even though projects which use them (including Big Sky Telegraph) report far more impressive results.

Additionally, technological developments and new services, such as ISDN, in-lata packetswitching, VSAT, digital telephones, and faster error correcting modems, coupled with better telecommunications software, online graphics, and more portable computers - all promise cheaper and more effective telephone-based telecommunications.

Inherently, interactive telecommunications centered on local host computer systems, create, and foster "peer" lateral communications, something not possible with broadcast technologies. In educational terms such lateral communications duplicate the classroom "group" interaction that has been, after teacher-pupil communications, the sine qua nun of "education."

ISDN holds great promise for the future, but not within the next decade for most rural schools and communities, some of which are fifty miles of dirt road to the nearest grocery store or paved highway. The phonelines already in place hold untapped potential TODAY. Further, while video-based technologies are the more immediately appealing, information dissemination for most purposes will be text-based.

A restructuring of our American educational system to provide ongoing opportunities for lifelong learning through telecommunications is both necessary and inevitable. It is estimated that the average worker will require retraining an average of five times during an average working career.

APPENDIX C: Western Montana College's Economic Development Initiatives and Programs.

The Big Sky Telegraph online environment has vast potential for fostering coalitions between business and special interest groups. With an ease and speed never before possible, Big Sky Telegraph provides for community to community information-sharing including rural economic development strategies and the delivery of a flexible, quality adult retraining program.

Western is active in rural economic development. Recently a Carl Perkins grant was awarded to Western Montana College to hold a conference on campus entitled: Information Technology Education and Rural Economic Development. The conference was a great success with a broad cross-section of participants. Everyone was pleasantly surprised to see the variety of information technology businesses already successful in rural Montana.

Tourism is all important industry in Montana, and we have a major resource in the undeveloped business and promotional skills of Montanans. Intelligent telecommunications, applied to tourism, has tremendous potential for creating an information-based, renewable economic resource.

Western has a two-year degree in Tourism and Recreation which will prepare students for entry into this rapidly growing industry. Ongoing training and support to those already employed in the tourism industry is a distinct possibility. This degree may be taught to inmates at the Montana State Prison over the computer next year.

Another new two year program is the Associate Degree in Communications Technology covering CAD/CAM, Desktop publishing, computer graphic design and telecommunications.

The Headwaters Economic Development group and Western Montana College have linked together Southwest Montana's seven county economic development groups, including several Unix-based databases.

A similar online effort for agribusiness interests in the seven county area has been funded through the creation of an Agricultural Incubator without walls. This demonstrates the feasibility of training and information dissemination to regional businesses through use of a circuit rider, beginning in Southwest Montana.

There has been discussion about each rural community obtaining a microcomputer to run a local bulletin board system for free dissemination of databases and electronic communications services to the local communities. These local systems would automatically transfer outgoing mail to other such systems statewide or globally with no cost to the local user. Major cost savings are quite viable.

The twelve women's centers in Montana have received funding to receive training to use Big Sky Telegraph to better share information statewide. The Anaconda Job Corps has received funding for similar purposes and plans to post job openings online. Other job corps offices have expressed similar interests.

The Small Business Administration of Montana and the State Department of Commerce have joined 40 economic development-related public offices in supporting a separate grant effort for Big Sky Telegraph to become the economic development system for Montana. Montana Senators Baucus and Burns are submitting two federal bills aimed at increasing rural access to telecommunications and small business capital. Big Sky Telegraph was presented at a recent congressional hearing as testimony of a working grassroots system.

The Kellogg Foundation via their ICLIS (Intermountain Community Library and Information Services) project has provided funding for Western Montana College of the University of Montana to develop a new online course entitled: Information Technology and Economic Development. This innovative offering will be taught for credit over a five state area through Big Sky Telegraph and will introduce the basics of telecommunications, spreadsheets, databases and wordprocessing. An introduction to agricultural computing will also be a key feature. Ongoing training opportunities will be emphasized.

A UUCP (Unix-to-Unix Communications-Protocol/Global Usenet) telecommunications link through the University of Montana has the capacity for economical international exchange concerning economic development as well as educational exchange and increased cross-cultural awareness. The exploration of these emerging cost-effective communications links will assure that

Montana maintains its viability in today's increasingly global marketplace.

A direct link with the Montana International Trade Office in Tokyo for small businesspersons would be a classic example and is currently accessible through Big Sky Telegraph and the TWICS telecommunications system in Tokyo (which is run by a Montana native.) Collaborations with other educational networks and rural economic development organizations will be greatly facilitated through this network.

APPENDIX D: System Creation Progress for Wyoming, Nebraska and Colorado

The following updates on progress toward the independent creation of online systems for Wyoming, Nebraska, and Colorado indicate the receptivity to the concept and rapid evolution of the awareness of system benefits.

WYOMING'S PROGRESS :

As a direct result of Frank Odasz, Director of Big Sky Telegraph, presenting a live demonstration of Telegraph to 70 members of the Casper Rotary, including Larry Stoltz of the Governor's Economic Development Board, Big Sky Telegraph Consultant David R. Hughes was asked to meet formally with Wyoming's Economic Development Board to discuss the possibility of Wyoming creating its own online system to disseminate economic development information statewide. Tentative approval has been given toward the creation of a state-funded, state-run, online system similar to Big Sky Telegraph.

Don Whitacker, Head of a 12 Wyoming city municipal electrical power co-op, has expressed disappointment at US West's reluctance to take action regarding introducing online systems into Wyoming and has declared his intention to establish an online system for the 12 member cities. David R. Hughes has been requested to advise this group on how to proceed. This effort is independent of the Governor's Economic Development Board's plans.

Frank Odasz was one of the first graduates to receive a Master of Science degree in Instructional Technology from the University of Wyoming and predicts no problems associated with the University of Wyoming being receptive toward offering to house either an educational or economic development online system.

Frank Odasz presented a proposal to the US West Foundation of Wyoming in 1984 for the creation of an online educational system to support rural educators. While receptive to the idea, Wyoming's US West took no action; Frank went on to create Big Sky Telegraph in Montana with Montana's US West. Wyoming librarians and rural teachers have since received telecommunications inservice instruction directly from Big Sky Telegraph.

Wyoming is cultivating a trade link with Taipei, Taiwan. Big Sky Telegraph already has global links in place with Tokyo through Internet and UUCP. Online lessons are available to teach global communications to anyone, anytime, anywhere, in an easy-to-follow mastery learning format.

NEBRASKA'S PROGRESS :

Last year a group of concerned businessmen and educators formed "WestNet" and created an online system in Colorado Springs in partnership with the US Space Foundation to disseminate Science, Math and Space lessonplans to educators in Nebraska. Disenchantment with the US Space Foundation's ability to foster the growth of educational sharing has caused the WestNet group to decide to set up their own online system within Nebraska to serve rural educators.

Father Charles Scott, Director of WestNet, has been in touch with Frank Odasz and David R. Hughes for advice on how to proceed. $30,000 from private sources has already been donated toward this effort.

COLORADO'S PROGRESS :

Senator Sandy Hume, head of the Hume Telecommunications Commission, sees the potential of online systems for Colorado, but is currently frustrated by the video bias demonstrated by large communications companies, including US West, and is pushing for a fair, academic appraisal of the potential of both forms of distance learning instruction.

Senator Hume has indicated privately to David R. Hughes that the Senator would be willing to figure prominently in assisting the search for a host institution in Colorado if US West considers funding an online system for the state.

The Telluride Institute, created as an offshoot of the Megatrends group formed by John Naisbitt, has volunteered to host an online system for Colorado if US West considers this multistate grant request.

RURALNET

A ROCKY MOUNTAIN REGIONAL NETWORK

A PROPOSAL

TO THE

US WEST EDUCATIONAL INITIATIVE GRANTS PROGRAM

SUBMITTED BY

THE

WESTERN MONTANA COLLEGE FOUNDATION

WRITTEN BY

FRANK ODASZ, DIRECTOR OF BIG SKY TELEGRAPH

NOVEMBER 1, 1989

Ruralnet: A Rocky Mountain Regional Network

This concept paper lays the foundation for expansion upon the initial success of Western Montana College's Big Sky Telegraph to serve the three main components of rural communities:

- Rural education
- Rural economic development
- Rural governmental information/community services access.

This expansion will build an infrastructure to serve rural needs through a program of microcomputer telecommunications skills training for individuals in each of the above three stated areas from four states: Idaho, Wyoming, Colorado, and Montana.

This proposal engages ALL of the strategic focus areas outlined in the U S West Educational Initiative. Western Montana College is the proposed recipient of the grant.

The overall concept links rural educators, economic development, and local government services, using small rural schools as the natural place in a rural community to develop human networks and telecommunications expertise. The school teachers will transfer that expertise to local business and government organizations. Using existing school equipment, the teachers will be reimbursed on a per student basis.

On January 1, 1988, thanks to seed funding from U S West, Big Sky Telegraph at Western Montana College went online to train and to link 116 one-room Montana school teachers via microcomputer telecommunications. Over 7000 messages have been exchanged between 300 persons during the last eight months.

More than 30 teachers have successfully completed the formal training. Previously, only two of them had ever used a modem. Over 100 additional rural teachers have come online and are planning to receive the full online training available OVER THE MODEM at their convenience, and at their location.

Each teacher represents a rural community and, as part of the online course, has demonstrated Big Sky Telegraph to the local community. Enthusiastic support has been the typical response by local school boards. Phone costs of as little as five dollars per week are enough to benefit from Telegraph's services. This project is now being touted on global networks as a landmark success for rural educational telecommunications.

Western Montana College has a nearly 100 year history of serving rural educational needs as its prime institutional mission. Western's Rural Education Center is nationally renowned and would be central to this outreach program. Western would serve as a lighthouse of expertise which would be available literally at the fingertips of rural learners.

As a direct result of this training, the participating organizations will learn how to develop their own regional online networks and centers of expertise. These new networks can then be linked to larger networks dealing with national and international markets, centers of influence, expertise, and services.

RURAL EDUCATION

Western Montana College's Big Sky Telegraph has shown the effectiveness and speed with which a peer network for information sharing between small schools may be established among rural and otherwise isolated teachers. Funds to include the rural educators of Wyoming, Colorado, and Idaho make possible a Rocky Mountain Regional Network of rural educators. This Ruralnet concept has economies of scale regarding resource sharing which will benefit ALL participants in quality and costs.

The rural educators of Wyoming, Colorado, and Idaho will be invited to receive training in the same remote delivery format as have Montana educators. The more teachers we have on the network, the more resources we'll be able to accumulate and distribute electronically.

The microcomputer-based modem, voicemail, fax, and database technology of Big Sky Telegraph has the potential to reach students in every corner of these states regardless of ability level, handicap, location, time available for learning, or the limitations of local schools, libraries or teaching staff.

Resources are linked and leveraged into a system of maximum utilization allowing teachers from any location to drop in via the network to observe developments and share ideas. Lifelong learning and professional development programs will reach a maximum audience at a lower cost than any comparable service. Research studies confirming these advantages are available.

Western Montana College will expand its role as an educational telecommunications incubator with a rural community emphasis. Local experts will be available online to encourage and develop online support services to Rocky Mountain residents through Big Sky Telegraph's electronic mail, databases, and online conferencing.

RURAL ECONOMIC DEVELOPMENT

In each of the four Rocky Mountain states economic development programs and related initiatives are beginning to thrive. Increasingly, education and economic development are becoming inseparable.

Western is active in this area. Recently a Carl Perkins grant was awarded to Western Montana College to hold a conference on campus in March, 1989, entitled: Information Technology Education and Rural Economic Development.

The Big Sky Telegraph online environment has vast potential for fostering coalitions between business and special interest groups. With an ease and speed never before possible, Big Sky Telegraph provides for community to community information-sharing including rural economic development strategies and the delivery of a flexible, quality adult retraining program.

GOVERNMENTAL/COMMUNITY SERVICES ACCESS

Historically, rural communities have been isolated from the main stream of available services and policy making in state and national government.

Governmental offices are often unavailable at the times when working people are free to communicate. Officials will be invited to post the most commonly requested information online on Big Sky Telegraph for retrieval by the public. Efforts will be made to make representatives of county, state, and federal governmental agencies directly available online to rural residents, thereby using telecommunications to make the government more accessible and accountable to all citizens.

This project will reach into every community, in the grassroots, practical way demonstrated by Big Sky Telegraph, to stimulate the acquisition and use of these tools toward more efficient communication between rural people and their own government.

Big Sky Telegraph's friendly environment forms a fertile base for coalitions between parents, educators, librarians, government, and businesses to a degree never before possible with past technology.

METHOD

PROJECT ADMINISTRATION

This project is intensive in programmatic development and training which requires a high quality core team with both technical skills, educational training, and experience in using and managing these technologies.

A board of directors fiscally answerable to the Western Montana College Provost and fiscal office, and contractually (the terms of the grant) to the US West Foundation, would be formed to oversee the project's plans, contracts and expenditures. This board would have one educational representative nominated by the appropriate state educational body in Wyoming and Colorado, one US West representative and one economic development person from each state, plus the project director and Provost of Western Montana College.

The administration of this multi-state project will be headed by a Project Director with one fulltime Technical Director, one fulltime Administrative Assistant and one fulltime Resource Coordinator.

A masters level system director and circuit rider for each state will be hired to direct and run each of the three separate state systems. For Montana, dual roles for present staff are possible.

PROJECT PERSONNEL:

PROJECT DIRECTOR: to administer the multi-state program at all levels, to provide the vision, direction, and enthusiasm for the project, and to create the core training materials for the State Telegraph Teams.

TECHNICAL DIRECTOR: to Provide the technical expertise necessary to create and maintain the multistate network as it grows from three initial systems to include local bbses, and to development of global connections, user-friendly software design enhancement, NAPLPS graphics transmissions, and the high level technical support necessary in the event of a serious problem on any system in the network.

ADMINISTRATIVE ASSISTANT: to aid the project director in managing expenses, personnel, and office communications, to perform routine system maintenance on the various 386 systems and to provide the training to the state system operators. Also, to assist in the design and creation of online databases, global messaging and advanced system design to suit the specific needs of each state.

RESOURCE COORDINATOR: to identify existing resources and resource providers within each state and tie them into the state network. To work with the resource providers to identify how to establish multi-state sharing of resources. To identify regional experts and to bring them online to share their knowledge with others. To train rural educators and selected individuals in the basics of online interaction.

OFFICE MANAGER: office and correspondence management for the project director, handling of mailing lists, routine electronic mail, phone call management and routine data entry. Authorship of newsletters for each state, low-level technical maintenance of the Big Sky Telegraph system.

TELEGRAPHERS: rural educators and selected individuals will receive nominal stipends to host community demonstrations and to provide training to local rural educators and community members.

INSTITUTIONAL SPONSORS

To initiate implementation in the additional states, an appropriate educational institution will provide an office for the state computer and staff. A masters level state project director must make arrangements to teach online classes to state educators for recertification credit through the sponsoring institution.

See Appendix D: State Progress Reports, for updates on the major progress the states have already made toward establishing state systems following the Telegraph model.

STATE TELEGRAPH SYSTEMS

Each state will receive the loan of a supermicrocomputer equipped similarly to Big Sky Telegraph. After the three year loan period the system will become the property of the sponsoring institution, or State Telegraph Team, if adequate use by state citizens and arrangements for economic self-sufficiency have been demonstrated.

Two full time positions will be required for each state Telegraph system. A Masters level Project Director would be hired to cover the project administration and development for the state, to teach teachers through credit classes suitable for teacher recertification and to serve as system operator.

The selection of the state Telegraph directors to operate the state systems will be based on the following criteria:

A. Educator with at least a Masters degree accepted by the state as qualified to instruct at the college level.

B. Demonstrated proficiency in the use and management of dial-up telecommunications systems.

C. A self-starter able to manage and promote the use of the technology.

D. Proficiency establishing online and offline relationships with educators, business and community leaders.

Selection of the state Telegraph director is the single most crucial decision to be made in this entire project. A mix of unique humanistic and technical qualities and skills are necessary to effectively operate such a system so that grassroots persons feel welcomed online.

A second position of Field Representative would serve as a circuit rider to demonstrate and tutor rural teachers and residents through site training visits, community demonstrations and will be available "online" to provide ongoing training via Twin bulletin board systems for education and economic development will be available on the state Telegraph system. Should usage of either bulletin board system become so great that expansion is necessary, funding for a separate system will be sought and a second self-sufficient system will be created.

Use of the state Telegraph system will be free the first year, subscription fees for advanced communications services will be offered the second year, and a full range of global networking features for subscribers will be implemented the third year. Access to the most necessary services will continue to be free to the public.

Either an 800 number, or use of discounted state lines, will be used to minimize the cost of online training and public access to the system. The most cost effective method(s) must be determined for each state independently.

THE HARDWARE AND SOFTWARE

Big Sky Telegraph at Western Montana College will assume all technical equipment and software development responsibilities involved for creating the several conferencing database environments required.

The state directors and/or institutions will receive training for their representatives to manage the information sharing activities of their separate information sections remotely via modem.

Each State Telegraph system will be phased into economic self-sufficiency within the three year time frame. Cost-cutting communications options will be explored. 800 number phonelines or state datalines will be used only for training new resource linkers unless funding for free public access is obtained from local, state, or US West resources.

COMMUNITY ONLINE ACCESS SITES

Existing computers in public offices need only a $150 modem to link to Big Sky Telegraph and thousands of other information services nationally and internationally. The following sites could serve as public access points with an educator or trained community person as voluntary or paid trainers:

Rural schools
Public libraries
Chambers of Commerce
Soil Conservation Offices
County Extension Offices
Feed stores
Other public offices or community leaders with microcomputers

The rural teacher will identify all public offices with microcomputers and enlist the voluntary aid of the computer users in the community to communicate the availability of services available online. A community "information team" will work together to get the word out and identify key needs which can be better served through the online services.

Microcomputers with modems will be distributed to a specified number of carefully selected communities who do not already have a computer in a location Suitable to public access.

PUBLIC ACCESS SITE SELECTION

Selection of a public access site must relate to the maximum availability of the computer to the general public. A rural teacher may meet with an interested community person evenings or weekends; or a public library may extend evening or weekend hours. Public demonstrations and/or group training sessions will be offered regularly. Local "evangelists" will be developed and encouraged.

The public access point and associated Community Information Specialist for a given community will be determined on the computer experience and enthusiasm of individuals rather than an arbitrary designation by institution. Messages intended for other local bbses statewide or globally can be left on the local system at no charge and will be routinely delivered during the night to the desired location. Shared conferences can similarly allow statewide discussions to take place with no expense to the participating individuals.

These public access sites may be expanded to serve as community training or information centers with the addition of vcr's, CD-ROM businesses or educational databases, FAX machines, or software/videotape loan libraries. Organizations such as Rural Electric Cooperatives will be asked to supply needed equipment. Community ownership of the overall concept and technology centers will be encouraged wherever possible.

It should be recognized that each community is different and must be dealt with in a unique manner. Consulting the community members themselves will be a priority step. Minimal initial costs to the community are necessary, until the value of access to the Telegraph system has been established.

TELEGRAPHERS

Educators or individuals in each community will be identified to receive a short course of instruction to serve as the information specialists in that community, shepherding questions from local community members to resource persons on Telegraph, and seeing that the responses find their way back to the local individuals.

This minimal functionality is all that is needed to begin the information counseling process tying isolated individuals with statewide expertise. A Telegraph Operator visor with the community name (Ex. Sun Prairie Telegrapher) will be awarded each information Specialist, to verify the status of the position.

Laptop microcomputers and overhead projection equipment will be provided by the grant so the Telegrapher can demonstrate the system to local groups. Nominal renumeration will be paid to the specialist for each community demonstration and for each local community member receiving lessons on the use of Telegraph.

Technofear must be fought with maximum congeniality and familiar human contact. Programs such as electronic penpals will be used to "break the ice" and to demonstrate that the state Telegraph is a people network, not a machine network.

THE TRAINING PROGRAM

The existing microcomputers at the rural schools can become the initial information skills training link for all interested persons in each rural community. Each educator, or community volunteer will serve as a Telegrapher and be eligible for on-going training opportunities and travel expenses for regional training or demonstrations.

Using a peer tutoring program, with modest cash incentives, an on-going, self-perpetuating program of online training and information sharing could be effectively facilitated among the three needs groups: rural education, economic development, and governmental information/community services.

By initiating economic exchange for online training services, the potential seeds of a new information-based economy will be sown. Formally isolated regional experts will have economic incentives for sharing their acumen, including the convenience of electronic mail to make sharing practical and not prohibitively time-consuming.

INCENTIVE INITIATIVES PROGRAM

An initiatives program will be incorporated to stimulate working examples of successful educational and economic activities, community services, and creative uses of online communications. Talented regional resource persons and organizations will be paid to perform small-scale contracts to:

1. involve rural libraries in small-scale model projects to enhance the distribution of information and community participation in information access or sharing.

2. facilitate local community innovations such as local bbses,

infotech centers, training programs, agricultural or business incubators, resource centers, resource identification projects, develop local grassroots leadership participation online.

3. create online databases and services for handicapped persons, displaced homemakers and similar needs groups.
4. develop unique telecommunications projects and tech-based home businesses.
5. establish library linkages bringing together resource providers.

TIME FRAME:

Year One 1990 - all three states consecutively:

1. identify key organizations to bring online
2. select state Telegraph Team <sysop/info. organizer, circuit trainer)
3. establish ties with broad representation (identify project drivers, riders and draggers) from statewide groups and organizations interested in participating in the project
4. select schools, communities and organizations and associated individuals to receive equipment and training
5. distribute equipment and initial training, demonstrations
6. establish initial listings of state resource persons and organizations to be represented online
7. establish online contact with state resource providers through resource linkers
8. develop local community information specialists, resource persons, peer counseling/training programs and classes
9. develop local incentives through initiatives program needs and priority programs

YEAR TWO:

10. conduct community assessments of information age skills, create training programs where necessary and conduct aggressive telecommuting opportunities program. Identify key limiting factors of state's telecommunications and tax infrastructure and lobby for a competitive footing with other states in our region.

11. create community and statewide online databases of available talent and skilled personnel and market this information

12. train faculty at sponsoring institutions to provide in-state online instruction opportunities.

13. establish educational links with out-of-state and global information sources

14. implement full complement of advanced services, initiatives programs, community assessments. Broaden base of users, resources, services, distance connections

YEAR THREE:

15. Continue to develop state-specific resource services and training programs. Respond to problematic areas from years one and two.

BUDGET:

ROUGH FIGURES ONLY. *SALARIES SHOULD REFLECT FULL BENEFITS

PROJ.DIR full time salary for three yrs $50,000/yr	$150,000
TECH DIR Full time salary for three yrs $40,000/yr	$120,000
RESOURCE COORDfull time salary for three yrs $32,000/yr	$ 96,000
ADMIN. ASST full time salary for three yrs $25,000/yr	$ 75,000
OFFICE MNGR $16,000/yr for three years	$ 48,000
Subtotal/Core Administrative	$489,000

STATE LEVEL ADMINISTRATION (per state):

System operation/information organizer three years times $24,000	$ 72,000
Circuit Trainer three years times $16,000	$ 48,000
Subtotal/State system administration for three years	$120,000

STATE LEVEL OPERATIONAL EXPENSES:

Travel budget - $10,000/yr for three years (use of trainer's vehicle intended)	$ 15,000
Office supplies - $5,000/yr for three years	$ 90,000
subtotal/State Misc	$135,000

STATE TELEGRAPH SYSTEM:

1 Telegraph 386 supermicro, (multiuser unix)	$ 20,000
1 laptop traveling trainer microcomputer	$ 2,000
1 286 information development/FAX system	$ 7,000
seed funds for initial State Resource loan library	$ 10,000
subtotal State Telegraph Equipment	$ 39,000

PUBLIC ACCESS HARDWARE/SOFTWARE/TRAINING:

- Microcomputers, modems and software for specific organizationally affiliated trainees and/or rural educators; 10 organizations and 25 rural schools/communities per state can receive both microcomputers and modems. Modems will be available to up to 100 rural schools and organizations with microcomputers per state.

  100 modems times $150 ....$ 15,000
  35 microcomputers times $2000..................$ 70,000

- 800 numbers for the training period only (use of state lines may prove more cost effective.)

- Phone costs of $30,000/yr/state Telegraph public access funds times 3 yrs.................$ 90,000

AND/OR Minimal access option, training only:
100 persons times $16/hr times 10 hrs.............$ 16,000

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subtotal/public access/hardware, software, training....$191,000

**other options include FAX boards, printers, CD-ROMs with business/educational databases, business software, bbs software, multiport boards and extra phonelines for local multiline bbses (larger cities only), overhead projection panel and projector.

PROGRAMMATIC DEVELOPMENT:

- Initial online training of multistate organizational information representatives and rural educators; 75 persons/state, 10 from economic development related groups, 15 from governmental/community service groups and 50 rural educators.
  $120/student times 75 students..................$ 9,000

- Online community outreach/peer training program with peer tutor stipends
  $25/trainee times 300 persons/state.............$ 7,500

  *could charge $120/student for class costs to Western or sponsoring institution in Colorado or Wyoming

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Subtotal/Programmatic................................$ 16,500

PROJECT OPERATIONAL EXPENSES

- NAPLPS color graphic transmission hardware and software	$ 25,000
- Big Sky Telegraph Expansion/operating costs research and development costs online databases, programmatic development customizing disk-based training software customizing uucp interstate communications software finetuning existing Telegraph software customizing global communications links equipment expansion	$150,000
- Incentive Initiatives program to develop: - library linkage programs - non-credit skills courses taught by state resource persons - online database and special services creation (seed money for handicapped and domestic services programs) $50,000 times 3 states	$150,000
- UUCP global communications costs - electronic penpals, international trade links $8,000/yr times three years	$ 24,000
Subtotal/Hardware/Software	$399,000

SUBTOTALS:

Project Development and Administration	$489,000
Project Operational Expenses	$399,000
State Administration $120,000 times three states	$360,000
State Misc. $135,000 times three states	$405,000
State Equipment $77,000 times three states	$231,000
Evaluative Study	$ 20,000
Project Subtotal	$1,904,000
- Western's administrative overhead, operating expenses, office space etc. at 10% of project total	$183,000
Total Project Budget	$2,033,000

BIG SKY TELEGRAPH

UNIVERSITY of MONTANA
Western
Montana College

Modem (406) 683-7680
Voice (406) 683-7338
FAX (406) 683-7695
Dillon, Montana 59725

WELCOME, NEIGHBOR!!!

To ***BIG SKY TELEGRAPH,*** an online community of educators and friends dedicated to empowering rural residents with knowledge access skills and matching community needs with existing resources and expertise.

TELEGRAPHERS: You are invited to become an electronic citizen of Big Sky at **NO CHARGE** by signing on and giving yourself a password.

SUBSCRIPTIONS: While access to our public information sharing services is free, a sponsorship fee of $10/$15/$20 per month is requested per person, community service organization or business office, respectively, for access to advanced services, training, and our resource distribution programs. With everyone's help, Telegraph hopes to become economically self-sufficient!

CO-OP: Serving as an online co-op, we provide customized online services to educators, individuals, and resource providing organizations to better connect existing statewide needs and services.

RESOURCE CONNECTIONS: Most of us are Montanans; you're invited to ask questions of our resource persons to help you connect efficiently with our growing roster of services. Anyone can message anyone, anytime, from anywhere. Perhaps you have expertise you'd like to share? We'd like to show you how.

TELEGRAPH OPERATORS: Telegraph operators receive training to serve as community information specialists assisting community members in messaging statewide resource persons. Call 683-7338 to find out who the nearest onliner is to your community or become your community's first link!

SCOUTS:Telegraph's online scouts is a group of advanced users active in seeking our the best resources nationwide and reposting them here in Montana via Big Sky Telegraph. Free advanced training is available for subscribing sponsors.

SET UP SHOP: Explore online work-at-home business opportunities; consider creating your own online information service.

EASY-TO-LEARN: Note the Quickstart guide on how to send and receive messages. Self-study and "for credit" online classes are available to learn generic microcomputer telecommunications skills at your convenience and at your location.

BIG SKY TELEGRAPH consists of two main bulletin board systems: Dial 406-683-7680, (300/1200 baud, 8N1). Type "bbs" for Telegraph's educational services and "hrn" for the Headwaters Regional Business Network. The rest should be self-explanatory.

Expand your horizons! Poke around some; you'll get the idea.

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Dillon, Montana 59725

BIG SKY TELEGRAPH'S
BUSINESS SERVICES

1. ***CONVENIENT ELECTRONIC MAIL***
   - avoid costly telephone tag
   - stay in closer contact with more people in less time
   - 90% less costly than Fax, and text is compatible with your word processor!
2. ***ONLINE CONFERENCING***
   - makes face-to-face meetings less necessary
   - allows your personnel to keep closer in touch
   - connectivity with economy, reliability, and convenience
3. ***OFFICE-TO-OFFICE DOCUMENT TRANSFER***
   - quick and easy daily organizational updates
   - automatic newsletter delivery
4. ***POST YOUR OWN*** customized menus, bulletins, databases, and information services statewide or beyond
5. ***BUSINESS DEVELOPMENT RESOURCES,*** grant writing assistance, economic development databases, online resource persons
6. ***EXPLORE GLOBAL MARKETS,*** information sources and expertise

AUTOMATED DOCUMENT DELIVERY: Disks can be customized to automate your business's communications needs with minimal employee training.From a remote office one can insert a disk, type a single command, and selected bulletins, messages or documents can be instantly sent or received. The remote site computer can be left on overnight and documents from your central office can be delivered directly to a floppy disk left in the drive.

ADVANCED INFORMATION SERVICES:

1. ***ONLINE DATABASE AUTHORING:*** Post your own databases
2. ***OPTICAL SCANNING SERVICES:*** We'll scan your graphics or text
3. ***DESKTOP PUBLISHING:*** Let us add style to your documents
4. ***FAX:*** We can fax text files for you
5. ***VOICEMAIL:*** Private answering machines with touchtone features
6. ***CUSTOMIZED PROMOTIONAL DEMO DISKS:*** for your ***OWN*** online services

ONLINE CLASSES FOR TRAINING AT YOUR LOCATION:

- ****"Microcomputer Telecommunications for Business"*** covers how to access other systems, electronic mail, conferencing, text transfer and how to use them to promote a business.
- ****"Computer Literacy for the IBM PC"*** covers Wordperfect 5.0, Lotus 1-2-3, dBase III plus, basic MS-DOS and telecommunications basics.

JOIN US! Big Sky Telegraph is an ***OPEN*** system. Have a modem? ***CALL US*** at 406-683-7680, 300/1200 baud. Enter "hrn" at the login prompt. For more information contact Frank Odasz at 1-800-WMC-MONT ext. 7338.

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BIG SKY TELEGRAPH'S EDUCATIONAL SERVICES

ARE YOU ONLINE YET?? IF NOT, LET US HELP YOU CONNECT WITH:

1. ***YOUR PEERS:***
   - Join over 100 educators and dozens of resource persons
   - Share ideas and lesson plans
   - 100% reliable messaging, at your convenience, 24 hours/day
2. ***TELEGRAPH'S SOFTWARE PREVIEW LOAN LIBRARY:***
   - Hundreds of quality educational software programs ready to be mailed to you for a two-week loan period
   - Free copying of OUR public domain software on ***YOUR*** disks
   - Centennial ideas, updates, and lesson plans
   - Science Kits for rural teachers
   - Little Big Library of children's literature
3. ***TELEWRITING PROJECTS FOR YOUR STUDENTS:***
   - Writing to make friends is motivational
   - Study other cultures; expand your students' horizons
   - The phone cost to your school can be kept to $5/week
4. ***ONLINE LIBRARY SERVICES:***
   - Free ERIC searches
   - Direct contact with Western's librarians and services
5. ***ONLINE EDUCATIONAL DATABASES:***
   - OPI's educational film and videotape database
   - The Telecourse Providers database
   - Our new Lesson Plan Database
6. ***TECHNICAL HELP AND WESTERN'S FACULTY:***
   - Western's microcomputer center director and services
   - Rural Education Center
   - Science and Math Specialists
   - SW Montana Special Education Co-op
7. ***ONLINE COMMUNITY RESOURCE PERSONS:***
   - Headwaters' Regional Network for business development and grant writing assistance
   - Women's Resource Center of Dillon
   - Retired Teachers

JOIN US! Big Sky Telegraph is an ***OPEN*** system. The sponsorship fee is $10/$15/$20/month for teachers, community service persons, and business persons, respectively. Sponsors receive a personalized ID and ***FULL*** access to ***ALL*** services. Online training and loaner modems are available. For information contact Frank Odasz, at 1-800-WMC-MONT ext. 7338. Have a modem? Call 406-683-7680, 300/1200 baud. Enter "bbs" at login prompt.

A Big Sky Telegraph diploma and embroidered patch are awarded at the completion of this course of instruction. It's fun! Be the first one ***ONLINE*** in your region!

GET ONLINE

WITH BIG SKY TELEGRAPH

Big Sky Telegraph offers connectivity with your peers through:

- ***Electronic Mail**
- ***Computer Conferencing**
- ***Text Transfer**

AND information access services:

- ***Online databases**
- ***Regional Library Services**
- ***Global Access**
- ***Fax, Voicemail, and Optical Scanner Services**

Online training makes telecommunications ***EASY-TO-LEARN***. New sections of the online class "Microcomputer Telecommunications" are forming regularly. The class us taken over the modem, ***AT YOUR LOCATION,*** at times of your convenience.

This one-credit mastery learning course costs $75 for educators, and self-study is free. A more rigorous business version is available. To register, call Sue Jones at 406-683-7537 or Frank Odasz at 406-683-7338.

The online lessons cover the basics to get you started:

1. ***Sending and Receiving messages***
2. ***Capturing and Printing Text***
3. ***Conferencing and Sharing Resources***
4. ***Wordprocessing and Telecommunications***
5. ***Accessing Online Library Services***
6. ***Calling Other Online Systems***
7. ***Receiving Online Text Files***
8. ***Sending Online Text Files***
9. ***Becoming a Community Information Specialist***
10. ***Understanding Instructional Telecommunications Options***

Ongoing use of Big Sky Telegraph can be kept easily to $5/week. This is the equivalent of one twenty-minute phone call and can mean up to 80 pages of exchanged information. ***Experience this cost-effective and versatile telecommunications technology!***

BIG SKY TELEGRAPH RESOURCE SERVICES OUTLINE

Big Sky Telegraph offers educators and resource providers:
*Electronic mail
*Computer Conferencing
*File Transfer
*Online Databases
*Custom Menus

RURAL EDUCATORS' SUPPORT SERVICES:
Type 'bbs' at the login for the following rural EDUCATIONAL support services:
(**)Marks services for sponsors only.

(**)BIG SKY TELEGRAPH'S SOFTWARE PREVIEW/LOAN LIBRARY
-Apple software worth $10,000, for K-8, evaluated for excellence, mailed on request.
-Check the five+ page listing available in the (R)esources menu option off the Main Menu.
-Message Regina Odasz in the Software conference for a two-week software loan.

*** PUBLIC DOMAIN APPLE AND IBM SOFTWARE**
-Select (F)iles off the Main Menu; type (A)rea for another files area; type 8 for Resources and look at the "applepd" file for Apple public domain software.
-Choose from a thousand IBM software programs; request a specific software type or topic.
-Message Lee Hoyrup in the Software conference.

*** ONLINE LESSON PLAN DATABASE**
-Your best lesson plans (or unit plans) will be included in the online database with your name as the contributor.
-"Perfect" plans with complete educational objectives are NOT necessary.
-Montana teachers are known for their creative and innovative teaching; if every teacher contributed just ONE plan, we'd have an extensive collection!

*** LESSON PLANS FILES AREA**
-Select (F)iles off the Main Menu; type (A)rea for another files area; type 5 for LessonPlans.
-Download dozens of lesson plans to your classroom.

*** THE TELECOURSE PROVIDERS' DATABASE**
-Distance learning options are listed by delivery medium and educational needs.
-At the Main Menu select (A)ccess, 1 for menubbs, 1 for Rural Teachers' Resource Services, 3 for Educational Databases, and 1 for Telecourse Providers' Database.

*** ONLINE ORDERING OF COMPUTER SUPPLIES**

-At the Main Menu select (A)ccess, 1 for menubbs, 2 for Headwaters Regional Network, 3 for Dillon Business Mall, and 1 for Computer Access.

-Message Gerry Bauer in the PrivateMail conference.

(**)LITTLE BIG LIBRARY

-Children's literature selected and boxed for K-8 will be rotated by mail every three weeks among participating online schools.

-Free disk containing the complete Little Big Library database (coming soon). Individual book ordering will be available.

-Children's literature questions/requests answered by Ethel Hawkins, Little Big Library's Head Librarian.

-To join this program message Regina Odasz with your school's name, address, school phone number, your home phone number, and the number of students with their grade levels and interests.

-Mailing charges from you to another school only.

(**)TELEWRITING PROJECTS

-Electronic penpals and writing projects for your students: both nationwide and global.

-You and your students will be linked with another Montana teacher and class.

-From a list of writing ideas, you and your teacher-link will decide what your groups will write on. Select (F)iles off the Main Menu; type (A)rea for another files area; type 7 for the Class files area. Look at "writing."

-You will exchange your students' writing through Telegraph and become comfortable with the procedure.

-You may continue writing with the same students or other Montanan students after your first experience. OR you may decide to go GLOBAL for the long distance cost of calling Telegraph.

-Message Regina Odasz with your school's name, address, school phone number, and the number of students with their grade levels and interests.

(**)ADVANCED USERS' CLUB AND CLASS

-This program is designed for persons who have already taken the Telecommunications for Educators online class.

-With a UNIX id and password, you enter another "door" in the Telegraph system, opening new resources and opportunities.

-You may take the advanced class (no charge this fall) and learn how to become a Telegraph Operator, your community's online service provider.

*** AMNESTY INTERNATIONAL**

-Regular postings of international human rights violations direct from Amnesty International.

-Incarcerated, non-violent men, women, and children need you to write letters for their human rights every couple of weeks, if you can spare the time and postage ($.75 to $1.50). Your students are welcome to write also.

-If your community does not have a letter-writing group, and you wish to join the Dillon group, please message Regina Odasz or John Rogan. Other AI members are online from Dillon and Helena.

MONTANA STATE LIBRARY'S SERVICES:

- *Information Services Department
  - -Message Darlene Staffeldt in the MTSTATELIB conference.
- *Blind and Physically Handicapped Department
  - -Message Barbara Ridgway in the MTSTATELIB conference.
- *Natural Resources Information System
  - -Message Jon Sesso in the MTSTATELIB conference.
- *Library Development Department
  - -Message Sheila Cates in the MTSTATELIB conference.

MONTANA OFFICE OF PUBLIC INSTRUCTION'S SERVICES

- *Distance learning program resources using audio, data, and video technologies.
  - -Message Ron Lukenbill, Facilitator
- *OPI's educational film and videotape database
  - -At the Main Menu go to (A)ccess, 1 for menubbs, 1 for Databases, and 2 for OPI's Film Library Database.
  - -Voicecall Jim Meier at 1-444-3170.

TECHNOLOGY EDUCATION

- *Select (A)ccess off the Main Menu; go to Educational Services menu, and select Technology Education.
  - -Message Scott Davis or Mark Rogstad in PrivateMail.

COMMUNITY RESOURCE PERSONS READY TO HELP:

*Message these folk in any conference.

Clo Wiltse	Appleworks databases, Home Econ. software
Ruth Carlstrom	Project Learning Tree, Aquatic, Science ideas
Cathy Nickisch	Apple public domain software
Carl Purdy	Special education software/interactive fiction
Leonard Mapston	Earth sciences/mineral taxonomy teacher
Bonnie Boggs	Project Wild, Learning Tree, Aquatic, Preschools
Andy Schiedermayer	Math for Young Astronomers
John Forsyth	Natl. Geographic Network, Breadnet, ed. bbs's
Margy Kernan	Library Specialist, Helena High School
Michael Jatcznski	Forest Service Computer Specialist
Jack Degolia	Forest Service Public Affairs
Smokey Bear	Conservation Resource Coordinator, Penpals
Dan Hawkins	MT Telecommunications Bureau - Public Safety Office

WESTERN MONTANA COLLEGE'S RESOURCE SERVICES:

***WESTERN MONTANA COLLEGE'S RESOURCE PERSONS**

- -Technical Computer Assistance
  - -Larry Hyslop, microcomputer center director, will answer your computer questions.
- -Science kits and videos
  - -Check the science files in the (R)esources files area off the Main Menu.
  - -Message John Rogan in the Sciencelab conference.
- -Math and science Apple software applications, questions, and suggestions
  - -Message Otis Thompson in the Software conference.
- -Language Arts faculty
  - -Message Dick Turner (composition, literature) in the Skywriting conference.
  - -Message Jane Maddock (American literature, ethnic and gender issues) in the Skywriting conference.
  - -Message Eve Malo (reading, early childhood education) in the Skywriting conference.
- -Adult literacy, computer literacy, rodeo
  - -Message Iola Else in PrivateMail.
- -Western's Continuing Education Program
  - -Message Sue Jones in PrivateMail.

***MONTANA RURAL EDUCATION CENTER**

- -New Rural Drug Education Program funded.
- -Message Dick Sietsema in the PrivateMail conference.

***WESTERN MONTANA COLLEGE LIBRARY**

- -Inter-library loans from many western U.S. libraries.
- -Free ERIC (Educational Resources Information Center) searches.
- -Free customized bibliographies from the LaserCat database.
- -Message Ann Eifert, online librarian, or Mike Schulz, Head Librarian, in the Library conference.

***SOUTHWEST MONTANA SPECIAL EDUCATION CO-OP**

- -Message Ann Rogan, Dillon director
- -Message Kelly Evans, Deer Lodge director

***WESTERN MONTANA COLLEGE's Online Classes:**

- -Microcomputer Telecommunications for Educators or Business Persons, 1 credit for $75; self-study is free.
  - -Message Frank Odasz for more information.
- -Computer Literacy on the IBM PC, 2 credits for $145.
  - -Message Larry Hyslop for more information.
- -Information Access Skills for Rural Educators, 1 credit for $75; MicroTelecom. for Educators is a prerequisite.
  - -Message Margy Kernan for more information.
- -Freshman Composition is available for advanced high school students and adults ready to begin college coursework.
  - -Message Regina Odasz for more information.

BIG SKY TELEGRAPH'S BUSINESS SERVICES:

Type 'hrn' at the login for the Headwaters Regional Network's Rural Business Support Services and Community Support Services:

SOUTHWEST MONTANA'S AGRICULTURAL INCUBATOR

*Seven Southwest Montana Agricultural and Economic Development Offices are online.

*Agricultural files, software, and advice are available.

-Select (F)iles from the Main Menu; type (A)rea for another files area; type 2 for the Agrifiles area.

*Message Director Bonnie Conley in the Agriculture conference, or Karl Ohs, Director of MAGPIE Agricultural Group.

HEADWATERS RESOURCE, CONSERVATION AND DEVELOPMENT

*Southwest Montana economic development profiles database

-Select (A)ccess off the Main Menu, 1 for menuecon, 2 for Headwaters' services, 1 for the Headwaters Database.

*Rural Economic Development Assistance

*Small Business Support Services and Counseling

*Grant Writing Assistance

-Message Emily Callaghan

*Grassroots Leadership Assistance

*Message any of the following resource persons in the Headwaters conference:

Ted Dodge, Director, Headwaters RC&D
Emily Callaghan, Grants Specialist
Corrine Killoy, Office Manager
Joan Angelly, Office Manager

SOUTHWEST MONTANA COUNTY OFFICES ONLINE:

Nancy Wheeler, Soil Conservation Service, Whitehall
Dave Martin, Powell County Progress Office, Deer Lodge
Peggy Schluter, Soil Conservaton Service, Philipsburg
Sheila Laslovich, Anaconda Development Corp., Anaconda
Mike Barron, Soil Conservation Service, Sheridan
Raelen Williard, Information Now, Helena

SMALL BUSINESS ADMINISTRATION

*Small Business Support Services

*Training Videotapes

*Message Jerry Christison in the Headwaters Conference

WORK AT HOME INFORMATION

*Information sources on how microcomputers and telecommunications can provide you with quality home employment

*Contact Lee Hoyrup in the WorkatHome conference.

HANDICAPPED SERVICES INFORMATION

- *Free telecommunications equipment available from US West
- *Online training available
- *Specialized information and resource persons
  - -At the Main Menu, go to (F)iles, select (A)rea change, 8 for ReAbled files
  - -At the main Menu, go to (A)ccess, 1 for menuecon, 3 for Community Support Services, 3 for Persons with Handicaps.
- *Message Ralph Martin, Bob Bryant, or Gerry Bauer in the ReAble conference.

WOMEN'S CENTERS STATEWIDE

- *Crisis hotline 800 numbers
  - -Select (A)ccess off the Main Menu, 1 for menuecon, 3 for Community Services, 2 for Women's Center
- *Personal Assistance
- *Online microcomputer skills training programs and loaner microcomputers are available.
- *Message Jody Webster in the Women conference.

WEDGO (Women's Economic Development Group)

- *Small business startup support, training and services
  - -Message Barbara Burke in the Women conference

MEDICAL CLINIC: MEDICAL QUESTIONS ANSWERED OR REFERRED

- *Ask questions of qualified medical personnel.
- *Dozens of hotline 800 numbers
  - -At the Main Menu go to (A)ccess, 1 for menubbs, 3 for Community Support Services, and 2 for Big Sky Community Clinic.
  - -Message Tom Fallang.

Frequent updates to this outline are available online.

BIG SKY TELEGRAPH'S RESOURCE POLICY

You can begin ordering resources for your school and communicate with other educators with only TEN minutes training time. A one credit online class, taken at your location and choice of time, covers how to benefit from ALL of Telegraph's services including the generic online skills required to tap into thousands of bulletin boards nationally. A free self-study option is available. You can learn to save yourself class preparation time while upgrading the range of educational experiences available for your students...and it's fun.

Subscriptions: Sponsors receive a personalized ID allowing them privileged access to Telegraph's advanced features, advanced training and our resource distribution program. Subscription fees are $10/$15/$20 per month for individuals and teachers, community service agencies, and business offices, respectively. Our more basic information services will continue to be free to anyone. The first 200 subscribers to Telegraph will be listed as our "founding sponsors" for supporting Telegraph's self-sufficiency.

One Room Schools:
One-room school teachers only are offered access to an 800 number when taking the online class. Telegraph has limited funds for this service. School districts will assume the long distance costs after the online class is completed.

Total Telegraph Costs:
One time costs for equipment and training:

Modem (assuming you have a microcomputer)	$129
($75 for an IBM modem)	
Ten hours training time - $16/hr (prime time) times ten	$160
Registration for one credit class (optional)	$ 75
Total cost of initial equipment and training	$364

Monthly On-going Costs:

Long distance phone costs, 20 minute calls at $5/week	$20
Subscription to Telegraph	$10
Total Monthly Costs	$30

A $20 per month long distance phone cost, payable through normal billing to your phone company, would cover the one, 20 minute, $5 prime time phone call per week. Adding this $20/month to the $10/month subscription fee brings the total cost per school for ALL Telegraph's services to $30/month, or $300 per ten month school year. The $10 subscription fee is payable monthly or annually to Western Montana College - Big Sky Telegraph.

RESOURCE POLICY EXTENSIONS:

An advanced user, or "Telegraph Operator," who may also be (or may become) an operator of a local bulletin board system connected globally through Telegraph, is encouraged to extend access to Telegraph's information and resources to community members for the single subscription fee.

A low budget district may request resources for other teachers through one local teacher paying one subscription. The online teacher who receives the software and takes full responsibility for the resources sent should check Telegraph messages twice a week for continued rotation of requested software.

Mailing Charges:
To keep our subscription fee at a minimum we need your help covering the mailing costs for resources. Sending us envelopes with a Post Office Billing number or allowing us to charge you monthly for mailing costs is necessary. All resources we send are mailed fourth class or the library rate.

State phone rate discounts are available. Call Tony Herbert at the Telecommunications Bureau, 444-2586, to have your school added to the cheaper state lines.

If you have phone problems you're invited to call Cora Lee King of US West at 800-621-1808.

Refer any questions to Frank Odasz at 683-7338. Leave a message as to when you'd like me to return your call if I'm not in.

We Is Us

Featured in the First Person Plural section, a "regular" in "U S WEST Magazine," are some of the millions of noteworthy people and events within this culturally diverse region.

Readers are invited to submit profiles on people of interest, topics or events to be covered in this section. A U S WEST coffee mug will be awarded for each idea received and a desk clock-calculator for each idea used.

First Person Plural is about us—all of us—and about the diversity in the vast territory between both coasts often overlooked in national publications.

Big Sky 'Cowboy Cursor' Corrals High-Tech

In Toston, Montana, six-year-old Luke DeMartin is blind and relies on his "talking" computer to supplement his teacher's instruction. Trouble was, he needed software to make the voice synthesizer work.

Margaret Haugland, Luke's teacher at the one-room schoolhouse, put out the word on Big Sky Telegraph. Within days, the software arrived.

—In Jackson, in the Pioneer Mountains of southwestern Montana, teacher Ann Verbance and her students wanted to enter an essay contest about the U.S. Constitution but had few background materials. Verbance requested help on Big Sky Telegraph. Documents arrived shortly. The school won.

—In Zurich, near the Canadian border, a school burned down, taking with it books and other materials. Word passed quickly on Big Sky Telegraph. Replacement supplies were offered from across the state.

—In Loma, teacher Bonnie Boggs took several messages on Big Sky Telegraph from worried children around the state whose ant farms were dying. She sent back advice to correct the problem—and added a note that her pupils' black widow spider had given birth to 170 babies—mother and young doing just fine.

Big Sky Telegraph is a communications network linking 116 one-room schools with Western Montana College in Dillon—and, in reality, the world.

In computerese, it's a "multi-line electronic conference network." In rural Western lingo, it's the "cowboy cursor."

Instead of dots and dashes, it uses bits and bytes, modems and microcomputers.

Project director Frank Odasz, a professor at WMC, says the computer telegraph allows rural teachers to pool resources, expertise and lesson plans; glean information from the college library and faculty, and borrow educational software as they would books. When the need arises, they can tie in with 6,000 other systems worldwide.

All they need is a computer, a grant-provided modem, software, the regular phone line and imagination to use the program in a variety of ways.

For as little as $5 a week in phone costs, they have access to an easy-to-use, two-way videotex system.

"The Telegraph isn't so much a computer network as a people network connecting human databases," Odasz says.

Big Sky was designed by Odasz, his wife, Regina, also a teacher at WMC, and technical consultant Dave Hughes of Colorado Springs. Big Sky celebrates its first birthday in January. It was set up with $55,000 from the U S WEST Foundation and $51,000 from the M.J. Murdoch Charitable Trust, Vancouver, Washington.

The 100 or more rural teachers trained on the system have become community information specialists, Odasz says, because they are the hub in the exchange of a wide range of information.

Thirteen women's resource centers around Montana are using the system, as are librarians and

***(Top):* Judy O'looney *(left)*, Montana accounts manager-Government & Education Services, reviews Big Sky plans with teacher Joann Nelson at Reichle School in Glen, Montana. *(Below):* Regina and Frank Odasz with map of Big Sky locations.**

county economic development people. Rural health professionals hope to provide medical information to outlying areas.

There's even Kid Mail, allowing children to communicate with electronic pen pals throughout the United States.

The Big Sky Telegraph community is exploring ways to further Montana's economic development.

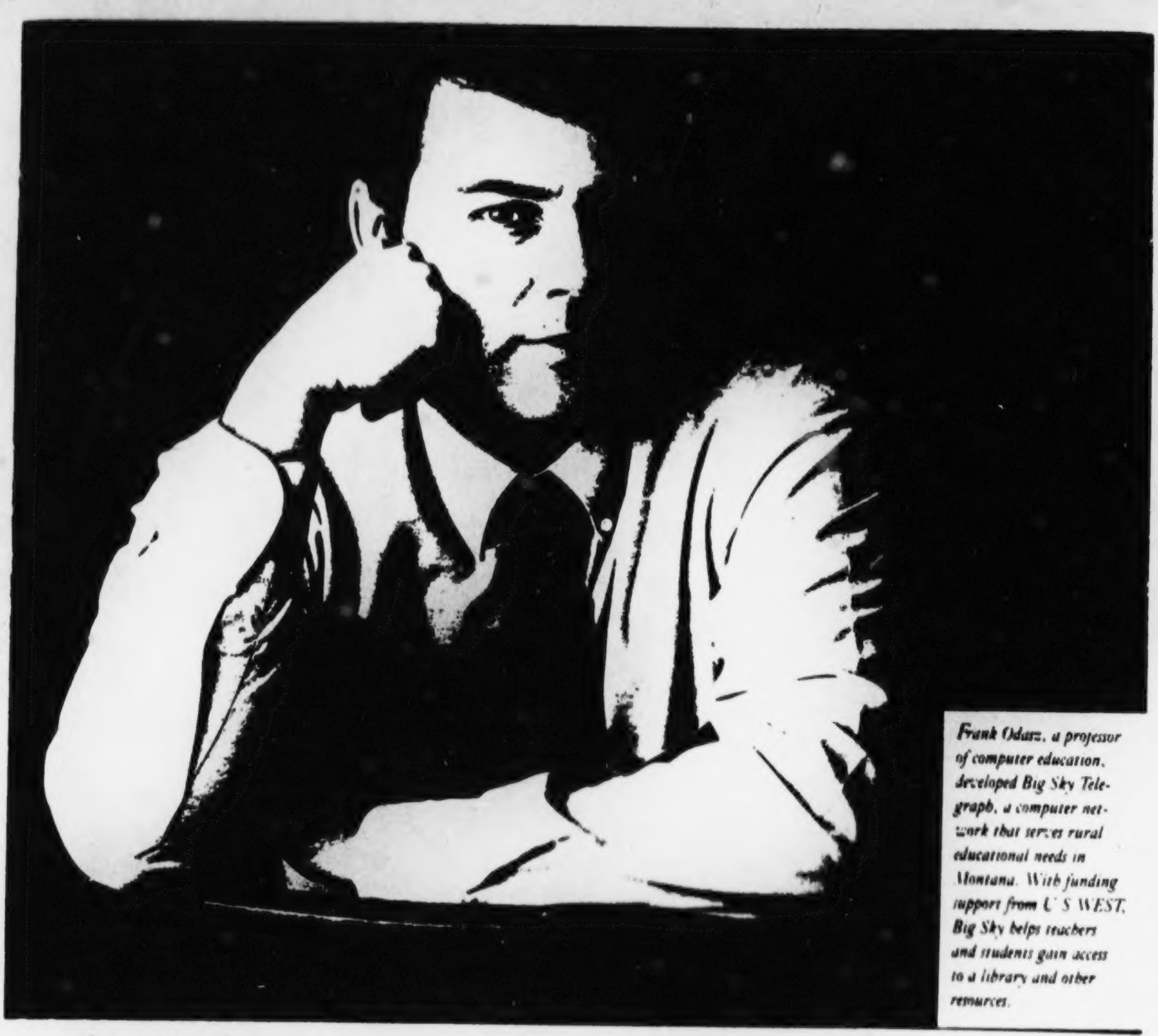
For instance, inmates at the state prison in Deer Lodge fill requests for tourist information about Montana. Soon they may be able to earn a two-year tourism and recreation degree via Big Sky.

Odasz says he thinks the Telegraph can make government more accessible and accountable to create what he calls a "true electronic democracy." Citizens could communicate with county, state and federal officials and their elected representatives "on line."

The system is already known internationally, receiving calls and letters from as far away as Tokyo and Singapore. Several Third World countries are interested in starting similar projects. Expansion to schools in Idaho, Wyoming and Colorado is on the agenda.

Odasz calls Big Sky a major step in halting what he sees as a trend toward a two-tiered society—those who have access to computer technology and its benefits and those who don't.

The cowboy cursor, he says, is already changing life for the "electronic have-nots" in remote areas of Montana. —*J.G.*



Frank Odasz, a professor of computer education, developed Big Sky Telegraph, a computer network that serves rural educational needs in Montana. With funding support from U S WEST, Big Sky helps teachers and students gain access to a library and other resources.

Bringing Resources to the Classroom

To students and teachers in one-room schoolhouses in rural Montana, the Big Sky Telegraph means a college library, contact with other teachers, information, answers, and ideas.

Big Sky, a computer network that serves the educational needs of people in rural areas, is the brainchild of Frank Odasz, a professor of computer education at Western Montana College.

The network – Odasz calls it "a people network" – allows teachers in rural areas to pool resources, question each other about lesson plans, share information, and call on experts throughout the state.

The network provides access to the Western Montana College faculty, librarians, and such community services as a women's resource center, a handicapped needs' group, a regional economic development office, and a rural health information center.

Odasz believes the network, funded by U S WEST and the M. J. Murdoch Charitable Trust, can help prevent a two-tiered society of those with access to computer technology and those without.

And its meaning for teachers and students in rural areas? "My students are beginning to appreciate what technology can do for us," Wanda Valeska, a teacher in Wisdom, Montana, says. "We're no longer out here all alone."

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DEMOCRACY IN EDUCATION EDUCATION FOR DEMOCRACY
OFFICIAL PUBLICATION AMERICAN FEDERATION OF TEACHERS AFL-CIO

Big Sky Telegraph co-founders Regina and Frank Odasz sit before a map showing locations of teacher contacts.

Computer cowboy links frontiers

BJ Gneiting teaches children from grades K to 8 in a one-room school in Wise River, Mont. This fall, as her students began a unit on inventions of the last 100 years, Gneiting sat down at her computer and sent out a plea for resources on Big Sky Telegraph. Within a few days, she had received books and an educational software package called "Timeline" to share with her students.

Perusing her mail on Big Sky Telegraph, teacher Patti Monaco in Wisdom, Mont., found out about a Montana state centennial essay contest. She spread the word at her school and had the children enter. Other teachers across the state found out about the contest in the same way.

Big Sky Telegraph is the brainchild of Frank Odasz, an assistant professor of computer education at Western Montana College and a member of the AFT-affiliated Western Montana College Faculty local. A dude-ranch carpenter turned telecommunications wizard, Odasz and his wife got the idea for BST some years ago after receiving their master's degrees in instructional technology at the University of Wyoming.

In 1984, they went to US West, a regional telephone company, to broach the idea of creating a state-of-the-art, multiphone line electronic bulletin board to connect teachers in rural one-room schools across the state. In January 1988, with $106,000 from US West and the M.J. Murdock Charitable Trust, Big Sky Telegraph was up and beeping.

Big Sky Telegraph is an on-line data base and computer message board that allows teachers to learn about educational resources, request materials and information, send or receive lesson plans or any other material via computer, and borrow books and software as if from a library. The telecommunications system is compatible with any computer and provides a link among three colleges and their libraries and the 116 one-room schools spread out across the state.

Beyond the educational connections, Odasz says Big Sky has "profound implications for government and entrepreneurial opportunities. It provides a form of electronic democracy." The network has already branched out to serve community development, religious, health and tribal groups. Odasz sees great potential for commercial applications and for global communication.

In Montana, says Odasz, "we're losing population, established industry is in decline. Most college graduates have to leave the state to get work. Higher education is grossly underfunded. We need better and smarter ways to get information and need to be looking beyond our traditional industries to compete."

Rural teachers connect through Big Sky Telegraph

by Frank Odasz

Of necessity, rural teachers today are among the most resourceful teachers in the profession. They are responsible for a multi-grade curriculum and have minimal resources. By responding to their needs, Big Sky Telegraph (BST), a rural teachers' computer network, provides a valuable resource.

BST is a multi-line electronic mail bulletin board and professional database system with unique "user-friendly" software. Based at Western Montana College, a teachers' college with a 94-year history of supporting rural education, it supports teachers by offering a wide variety of economical online communications services and resources. All they need is a computer, modem, and access to a phone.

Communication with other teachers on BST presents the quickest means available today for busy teachers to share ideas, expertise and resources. Through electronic-mail and open computer conferencing, BST offers a new and practical way of managing the circulation of instructional resources between rural schools. Because budgets of rural schools are likely to be small and resources are needed often for only short periods, shared circulation of resources makes perfect sense.

Formerly, the voice telephone has been unreliable for frequent and efficient communication between educators. "Telephone tag" offers an unacceptable rate of 50% or less for effectively connecting busy teachers, particularly with convenience for both parties. For timely correspondence, regular "snail mail" has obvious limits, too, and face-to-face meetings are expensive in both time and travel funds.

Big Sky Telegraph circulates a $10,000 collection of quality educational software programs among rural schools by regular mail, efficiently coordinated by electronic mail. Other circulating resources include science kits, videotapes, theatrical plays and printed resources from Western's campus library.

Through BST, Western's campus library regularly delivers more interlibrary loan requests to rural teachers than any of the much larger higher education institutions in Montana. Free ERIC searches are available due to Western's CD-ROM database system. The results of an ERIC search are returned through electronic mail.

Funded by grants from the M.J. Murdoch Charitable Trust and US West, BST provides 114 one-room school teachers with the opportunity for a free modem and a one-credit online class on its use. An 800 number is provided during the training which takes place at the teacher's location, at the teacher's convenience. After ten short online lessons via the modem (two per week), a rural teacher can learn not just how to communicate with other rural teachers and benefit from BST's resources, but how to call thousands of other online services nationwide.

The online class teaches how costs for continuing use of the network can be kept to $5 in phone charges per week. During this single weekly twenty-minute call, four pages per minute of printed information and mail can be sent and/or received. When convenient, a teacher can make direct requests to the WMC campus library and BST's software preview loan library, exchange dozens of messages, and much more. Using word processing, written messages can be composed offline and economically sent in a few quick minutes.

Four hundred people have called over 12,000 times during the first ten months of operation leaving over 7,000 public and private messages. Callers have dialed in from over twenty states and from as far away as Tokyo, sharing tips and written educational resources. Over 500 documents and essays have been contributed by callers. Global capabilities will be added early in 1989 allowing students and teachers the option of affordable international penpals and cross-cultural information exchange. BST's many state-of-the-art technologies include online databases, an optical scanner for quickly entering printed materials into transferrable electronic form, facsimile (fax) capabilities, voicemail and simultaneous milti-user computer conferencing. One measure of the good design of the system is the fact that over six out of every ten calls result in a message being left. Many large mainframe systems average less than twenty percent.

BST is a "virtual" community of volunteers, a community defined not by physical location, but by the common interests and good will of those sharing information online. It has created a true "peer network" for a large number of otherwise isolated teachers.

Because rural teachers are often the information hub of a rural community, various community service agencies are represented online. Rural teachers enjoy an enhanced role as "Community Information Specialists," providing community access to economic development agencies, women's resource centers, rural health professionals, regional librarians, handicapped and special needs services...and the list is growing rapidly.

There has been lots of hype and glowing promises for telecommunications in education over the last decade. Few projects have lived up to their promise in "distant learning" technologies. BST has more than lived up to its original promise, perhaps because from beginning to end, it was designed by rural teachers, of rural teachers, and for rural teachers.

JOIN US! Big Sky Telegraph is an OPEN system. Those interested in helping blaze the online trail that others may follow are invited to call 406-683-7680 (modems only, 1200 baud, 8N1 parameters.) Type "bbs" at the login prompt. The rest is self-explanatory. A self-guided "walking tour" and self-teaching lessons are available online. Be sure to leave a message regarding information you need or can provide. ❑

Frank Odasz is currently in his fourth year at Western Montana College. Frank and his wife Regina, who also teaches at Western, created Big Sky Telegraph. They can be contacted c/o BST, Western Montana College, Box 11, Dillon, MT 59725.

BIG SKY TELEGRAPH

CLASS

PACKET

BIG SKY TELEGRAPH

Copyright Frank B. Odasz (c)

UNIVERSITY
OF MONTANA
Western
Montana College

Modem - 406/683-7680
Voice - 406/683-7338
Dillon, Montana 59725

TO BEGIN YOUR ONLINE CLASS:

1. You should have sent in your registration form, received your class information packet and have access to a microcomputer, modem and phoneline.
2. Read the Quickstart bulletin and telecommunications software sheets on how to make your first online call and where to find the lessons. Find your way to your class's conference and "raise your hand" in a message there when you're ready to start the class. Call if you're having technical trouble.
3. To begin the class, you MUST initially read ALL public messages in your class conference. Everytime you call Big Sky Telegraph you MUST read all new messages in your class's conference to keep up with the class activities and notices.
4. Read the syllabus and "How to be an Online Student" for class format specifics and begin Lesson1.
5. We'll learn by doing. All lessons are task oriented and in a mastery learning format. Ask specific questions, via messages, for specific answers whenever necessary. A 24-hour turnaround on responses is normal. Printer problems often require extra patience.

Current Online Class Conferences:

Rural Teachers meet in the Schoolroom conference.

Librarians meet in the Library conference.

Non-educators meet in the OpenClassroom conference.

If you're new to being "ONLINE" remember:

1. Follow instructions carefully, one step at a time.
2. Patience and perseverance are the keys to online success.
3. Sidestep frustration: Ask Questions! Your problems are Frank's problems.

UNIVERSITY OF MONTANA
Western
Montana College

Modem - 406/683-7680
Voice - 406/683-7338
Dillon, Montana 59725

QUICKSTART GUIDE

HERE'S A RECOMMENDED TWICE A WEEK, TWENTY MINUTE ROUTINE:

READING YOUR MESSAGES:
At the Main Menu select one of these two ways to read messages:
1. Select Z)ipmail and Y)our, for your messages from all conferences. You'll have the option to either reply to each message or kill (delete) it. Delete your own old messages.
OR... 2. Select M)essages, select the conference you want, and then R)ead and N)ew for all new public messages.

TO RESPOND TO A MESSAGE, select M)essage Reply and the message will be automatically addressed to the author.

TO ENTER A MESSAGE, other than a direct reply select "Q)uit reading" and select "E)nter a message."

TO CHANGE CONFERENCES, select the A)nother Conference option.

USING MESSAGING: Ask questions or post needs publicly, order resources or software from any of our many resource persons. Use public messages in any conference to share ideas, favorite lessonplans, and bulletins. Interact with your peers informally and conveniently. It is common to keep up with a few conferences regularly and leave the others for occasional browsing.

FOR MAXIMUM ECONOMY: Writing long messages is best done on a wordprocessor and uploaded later. You'll find it saves money and is less hurried than writing on the phone. Use the C)ontinuous option to "capture" all new messages in a conference quickly for leisurely offline reading.

FILES AND LESSONS: After catching up with messaging you may wish to read or "capture" some of our many interesting essays, listings and bulletins. Select F)iles from the Main Menu for a list of the files areas. To read a file select D)ownload, enter the filename, and select T)ype for the file to appear on the screen. See the Class files area for the online lessons.

MENUS: Custom menus are available for individuals and organizations to share information. Updated remotely, you can use Big Sky Telegraph to promote your own interests. Select A)ccess off the Main Menu, and 1.Main.Street. Noodle around and explore.

DONATE: Send us (upload) your better text files such as lesson plans, and ideas on what works best for you to share with your peers and to add to Telegraph's new lesson plan database.

IMPORTANT TO REMEMBER:

****
* Control S will stop the screen: Any key will restart. *
* Control K will return you to the menu at anytime.   *
****

HOW TO BE AN ONLINE STUDENT

Taking an online class is different from taking courses the traditional way, since it is self-directed study. An online student has to be self-motivated. There is no teacher present to pressure you into doing your work. You have to able to guide your own study and observe class deadlines.

There are many advantages in using the online medium, but if it is new to you it will take some adjustment.

CONSIDER THESE ADVANTAGES IN TAKING AN ONLINE COURSE:

1. no time or money lost to traveling to class

2. class meets at your convenience

3. you'll have more personal attention than even a face to face class

4. more student-to-student interaction is possible through the electronic mail format

5. the interactive written framework allows for more indepth interaction with the course material, teacher and students than mere classroom discussions.

6. once you've completed one online course, you'll have skills that open the door for a wide variety of online experiences

TAKING A COURSE IN A TRADITIONAL CLASSROOM:

For each college credit you would spend an hour a week in class, and be expected to spend two additional hours in study.

TAKING A COURSE ONLINE:

You should expect to spend as many hours per week per credit reading and studying offline but you can literally take an online class any day of the week, any hour of the day or night. The bulletin board is available 24 hours a day.

You must establish a regular pattern of keeping up with the online class activity and interacting online with the instructor and the other students. Records are kept regarding this necessary interactivity.

A typical pattern would be for you to personally schedule a minimum of two time slots a week to access the bbs, catch up with the public class activities, communicate with your instructor and work on homework. Each time slot should be one hour, to one and a half hours in length for the actual 'class time', and another two to three hours each week for homework.

You need to quickly establish the habit of recording all messages you need to read on your computer, exit the bbs, and print and read the messages. Write your responses as files on your wordprocessor and send them during your next call. In this manner phonecosts can be kept to a minimum and the quality of your responses will not be compromised by hurried typing while the meter is ticking.

Working on the class with a friend is a good method for those with limited computer confidence though each of you must complete all assignments individually.

COMMUNICATION WITH THE INSTRUCTOR:

Studies have shown there to be more one-on-one interaction between student and instructor in online classes. This communication takes the form of messages back and forth, which involves a time delay of at least a day. The instructor checks messages once a day.

There are other forms of communication with the instructor when needed:

Voice phone during normal office hours: 406-683-7338

Voice phone at home: 406-683-6270

Electronic mail 24 hours a day using the bulletin board.
(returned once a day)

Mailing address:
Frank Odasz
Western Montana College
P.O.B. 11, 710 S. Atlantic
Dillon, MT 59725

GETTING HELP:

The unique format of this class needs appropriate techniques for getting help from the instructor. In this course, it is imperative that you not allow yourself to get 'stuck' at any spot. Getting stuck can be frustrating but should not stop you. You must practice communicating in writing with your instructor. Problems are usually minor requiring a detailed explanation to your instructor of what you have done, step by step, and what doesn't seem to be working. Communicative writing is a valuable skill at the very core of basic literacy.

ASKING QUESTIONS PROPERLY:

In a traditional classroom, if you have a question, you raise your hand and ask it. If the instructor does not understand it, or needs more information from you, he/she asks for it. Online, you do not have the immediate feedback, but your question will be answered within 24 hours.

It is very important that you ask questions that I can answer. Just saying "I tried this, and it did not work, what now?" is not enough. It does not get you the answer, and makes it very frustrating for me. I can get you past the bump in the road, but I have to have the information needed.

>>>-IMPORTANT--> When you have a problem, tell me:

1. What you were doing (step by step, in detail).
2. What you did that worked.
3. What you had just done when it did not work.
4. What else you tried to get it to work.

When all the information is supplied, I can usually answer the question and get you off and running again.

There is never a reason to panic. The high degree of interaction between teacher and student means individual hand-holding is possible for the insecure student.

Following are sources of help when you get stuck, so you can continue on in your learning:

1. Ask your fellow 'tele'students at your site and the site personnel. Studies have shown there is more interaction between individual students online. Ask questions of your fellow students; it's important to practice interacting online.

2. Read the messages flowing between the instructor and the other students in the class. Everybody has the same types of questions and problems. Read all "NEW" messages in your class conference EVERY time you call in.

3. Very soon in the course, you will know how to send me a message on the bulletin board, which I can return with specific help within a day.

4. Call me using either the day or evening numbers! Sometimes a problem needs a voice-to-voice answer. Do not hesitate to call. Voice calls are a good way to maintain rapport between teacher and student, especially when questions are complex enough to require intensive back and forth exchange. Most questions in an online class usually require only simple straightforward answers which lend themselves well to electronic mail.

A TYPICAL WEEK IN AN ONLINE CLASS:

Tuesday evening at 7pm, you get on the Big Sky Telegraph bbs. Two messages await from fellow students that you answer directly. You continuously scroll and save a personal message from the instructor, and two general messages to the class.

You upload to the bbs your completed lesson from two weeks ago. Next, you download the next lesson which will be due in two weeks.

You have been working on the lesson due next week, but have a question. You go back to the conference and send a question to the instructor about the lesson. You log off, and go into the word processor to print out the new lesson. The rest of the time is spent on the two lessons.

Thursday evening you log on the bbs to find a message from the instructor with the answer you needed for the lesson due next week. In reading messages between class members, you also find an answer to another problem you had. The instructor has added a discussion message, which you add your comments to. You message two people and log off. The rest of the time is spent on another computer working on the lesson.

CONCLUSION:

If you exercise a little patience and perseverance you'll find a whole new world of learning opportunities will open up for you. The advantages of the online mode far outweigh the disadvantages.

SYLLABUS

COURSE TITLE: MICROCOMPUTER TELECOMMUNICATIONS

NO. CREDITS: One Semester Credit at 491 level

COURSE OBJECTIVES:
To demystify the telecommunications uses of microcomputers as they relate to K-12 education and to provide access to needed rural community services through better communications with resource persons, Western Montana College faculty and library services, community support groups and other regional online systems.

To establish student confidence in microcomputer telecommunications to allow continued professional uses for peer networking, resource sharing, and K-12 student/classroom use.

INSTRUCTOR: Frank Odasz, asst. professor at Western Montana College

PREREQUISITES FOR ENROLLMENT: A good attitude is required. Keyboarding, wordprocessing skills, and some computer experience are recommended.

COURSE FORMAT:
A packet of software and printed materials will be sent to you prior to the start of the class. The class will begin when you have successfully called Big Sky Telegraph and left a message for Frank Odasz indicating your readiness.

Free modems are available to teachers from one room schools. A limited number of "loaner" modems are available. You'll need access to a phoneline with a standard clear plastic modular jack.

The training necessary for use of Big Sky Telegraph will be available to you by modem, through Western Montana College, at your location, in the form of either a one credit class suitable for recertification, a non-credit class, or a self-study option.

New classes are forming regularly on a first-come, first-served basis. To register call Frank Odasz at 683-7338 or Sue Jones, WMC Continuing Education Office at 683-7537. The fee for the one credit class is $120 for the business version, $75 for the educators' version. The self-study option is free. The lessons are available online.

Two twenty minute calls a week are required over a five week period. Specific tasks will be requested weekly to demonstrate what you've learned. The emphasis of the class is to make the services of Big Sky Telegraph available to you as straightforwardly as possible. You'll learn the telecommunications skills necessary to access other information systems statewide and nationwide.

An 800 number is available for selected schools ONLY for the duration of the class. After completion of the class, as little as $5 per week, (one twenty minute call,) is all that will be needed to allow you to continue to benefit from Telegraph's services.

A diploma and Big Sky Telegraph embroidered patch are awarded at the completion of this course of instruction.

COURSE OUTLINE:

Lesson1: Sending and Receiving Messages

1. Review of the online course format.
2. Managing compufear
3. Making your first online call.
    a. Introduction to online conferencing
    b. Leaving your first message
4. Introduction to the online basics
    a. Control S stops the screen, any key to restart
    b. S)ave will save a message.
    c. Control K returns you to the menu.
    d. Reading online instructions carefully
    e. Keeping a log of all online calls

Lesson2: Capturing and Printing Text

1. Testing the printer
2. Voice consultation with instructor
3. Introduction to Telegraph's online community
    a. messaging the online tutors
    b. messaging the online resource persons
4. Capturing text from screen to disk

Lesson3: Conferencing Efficiently and Sharing Resources

1. Telegraph's software preview loan library
    a. Resource circulation advantages and costs
    b. Requesting software from the preview loan library
2. Telegraph's Walking Tour, visit Main Street
3. Efficient use of conferences

Lesson4: Wordprocessing and Telecommunications

1. Introduction to wordprocessing
    a. Format a data disk
    b. Editing a file, (block delete)
2. Advantages of wordprocessing for telecommunicating
3. Visiting new conferences

Lesson5: Accessing Online Library Services

1. Introduction to sending and receiving text files
2. Accessing the services of the WMC Library
    a. What the ERIC database is
    b. How to have the WMC library search ERIC for you at no cost
    c. Using interlibrary loan for books and periodicals

Lesson6: Calling Other Online Systems

1. Calling OPI's Goliath system and other bulletin boards in Montana
2. A short history of bulletin boards
3. Advantages of microcomputer telecommunications
    a. Peer networking and the rural teacher
4. Rural teachers as community resource linkers
    a. Matching community services and needs
    b. The information age, job/skills training and rural Montana

Lesson7: Receiving Online Text Files

1. Receiving complete files from Telegraph to your data disk: (downloading)
2. Practice downloading
3. Telegraph's databases

    a. OPI's Film and Videotape rental library database
    b. Telecourse Providers Database
    c. Developing a local and statewide resource persons database
    d. Lesson Plan Database

Lesson8: Sending Online Text Files

1. Sending a prewritten file to Telegraph's files areas: (uploading)
2. Sending a prewritten message to an individual
3. Sponsoring a demonstration for your local community/school board
    a. Tips for group demonstrations

Lesson9: Becoming a Community Information Specialist

1. The educational and economic dev. possibilities of online systems
    a. Community Economic Development through Continuing Education
    b. Global marketing and intelligent communications
    c. Teaching online skills locally
    d. Online access to new opportunities

Lesson10: Understanding Instructional Telecommunications Options

1. Instructional Telecommunications
    a. advantages/disadvantages of the different mediums
    b. integrated systems provide the most flexibility
2. Tips on how to get the most information per minute online.

COURSE REQUIREMENTS:
Course will consist of a minimum of three hours/week over five weeks, one hour reading and/or doing offline assignments such as preparing text files for later communication, one hour online seeking and exchanging information and resources, and one hour working with your students or community members providing services or giving demonstrations.

COURSE TEXT:
No formal textbook will be used. Extensive readings will be done through the online lessons. Software programs will be extensively used.

GRADING (evaluation criteria):
Completion of all lesson assignments with a grade average of 70% including twice weekly online calls and associated printouts.

<<Lesson One: Sending and Receiving Messages>>

<<LECTURE>>

Congratulations on deciding to brave the online frontier!

If you have not already, you should read the BeginClass bulletin, the Quickstart bulletin, "How to be an Online Student" and ALL public messages in your assigned class conference [Select R)ead/N)ew]. Feel free to refer back to them at anytime.

A minimum of two half-hour calls a week are requested, at your convenience. It is VERY important for you to record the date, time and length of each call on the log sheets provided to you. You will be asked to mail them to me at the end of the class. Be sure to read ALL N)ew messages in your class's conference EACH time you call. Otherwise you'll miss out on important class activities and notices.

Plan to spend 1 hour a week online and 2-3 hours a week learning offline. Former students are available online to help you if you have questions. See the TrailBlazer bulletin to see who is online. Feel free to ask anyone questions, anytime. We'll assign you an online tutor if you request one.

Each lesson will have the following format:

1. A written lecture
2. A reading assignment
3. Skillbuilders: Online Tasks to try
4. A self-quiz
5. Homework required for credit
6. Comments on the next lesson.

Those authorized for temporary use of the 800 number during this course should remember: It IS possible for someone else to be using the 800 number when you call. We have two 800 lines. You can either call back in five minutes or use the 683-7680 number at your expense. If the 800 number won't work at your location, even at 300 baud, ask if I'll reimburse your phone bill expenses for using the toll number. The average online time required for the class is 10 hours (at $16/hr per teacher, costs equal $160.) Don't be shy about spending time online. Noodling around the system is a good way to learn what's here.

Patience and perseverance are the keys to overcoming compufear. You won't be able to hurt the Telegraph computer, or your computer, trying new things. (Worst case is we'll have to recopy a disk or two.) Everything looks horrendously difficult on the computer until you know how to do it; then it seems almost TOO easy. Asking specific questions results in specific answers. You're never alone! With our mastery learning format, everyone who demonstrates perseverance, learns!

You will be using many menus of online places and things to try. It helps to make a mental map of where you are. Fire up your imagination and leave tracks all over the place.

Selecting Zipmail will give you the options of Y)our messages or N)ew messages. Try the Y)our option but NOT the N)ew option. (Unless you are ready to read ALL messages New to you in all 12 conferences.)

<<READING ASSIGNMENT:>>

Review your class information packet, your modem manual and the communications software manuals. Read the syllabus, 'How to be an Online Student', look over the TrailBlazers bulletin and study the Quickstart bulletin.

<<SKILLBUILDERS>>

A. You are encouraged to practice sending messages. Select 3 persons from the TrailBlazers bulletin and send each one a friendly message.

B. Make a backup of your telecommunications disk using any copy program. If you don't, and your disk goes bad, we'll have to mail you another one. (Tell Frank if you don't know how to copy a disk.)

C. If you have problems, CALL ME (voice) at 1-800-WMC-MONT ext. 7338. Leave a message with the operator as to when a return call is convenient for you and I'll call you back as soon as possible (usually the same day.)

D. Call back after a day or so and read all New messages in your class's conference. (See the Quickstart bulletin.) Plan to do this EVERY time you call.

E. If it appears to you that Control S is not working to freeze the screen: Hold down the control key, but just TAP the S key.

F. You may send public or private messages to anyone you like, in any conference. Send a message to yourself. Use S)can to see if it worked. K)ill the message politely as deleting your own mail helps keep the conferences tidy. Feel free to leave public messages that others may find helpful.

*<<HOMEWORK REQUIRED FOR CREDIT>>
To pass the class it is important for you to message the specific information requested in these "Homework" sections to your instructor for each lesson.

A. After reading messages, the M)essage Reply option will let you automatically respond. Try it by responding to any message sent by your instructor and TELL HIM/HER you now know how to

respond directly to a message.
*Note: Type an S after the message to S)ave it.

B. S)can the Library conference and tell me in a PRIVATE message what mystery ANIMAL is lurking there.
Hint: Note the listed subjects of each message when scanning.

<<SELF QUIZ>>

1. Can you Scan a conference for messages by a given person, sent on a given date, or with a given subject?
2. Can you read a specific message by selecting its number?
3. Can you send both public and private messages?
4. Can you use "M" to reply instantly to a message?
5. Can you use "E" to enter a new message?
6. Can you use R)ead and N)ew to read all new messages in a given conference since you last called?
7. Are you willing to message or call Frank when you get stuck?
8. Are you learning to "noodle around?"

Online Rule #1: Casual *IS* professional.

Online Rule #2: Misspellings are *ALWAYS* typos, often too minor to worry about.

Online Rule #3: Your problems are Frank's problems. Call or message him if you get stuck.

<<NEXT LESSON>>

1. We'll capture text from the screen and test your printer.

<<Lesson2: Capturing and Printing Text>>

<<LECTURE>>

Welcome back! If you are having any problems whatsoever you should call Frank at 1-800-WMCMONT, ex. 7338. If you leave a message I'll call you back ASAP.

Congrats to you for completing your first online lesson. It is no small thing go to online on your lonesome. Since we're all busy full-time professionals, we'll make a special effort to stick to what you really need to know to benefit from Telegraph's services.

Reading instructions carefully, and completing the homework and the skillbuilders tasks, is necessary to know how to access what's here. Patience and perseverance. Yessiree Bobtail, that's the ticket alright!

Remember: This is an information and resource sharing system and the goal of the class is for you to learn how to SAVE yourself time through efficient communications, every time you call in.

<<RESOURCE PERSONS>>

Telegraph's resource persons are individuals that have volunteered to help others connect with resources and information regarding an area of special interest. Please feel free to ask them questions anytime and anywhere. Do YOU have an area of special interest or expertise that you would like to help others learn more about? Yes, I thought so, speak up when you're ready and we'll add you to the list!

<<READING ASSIGNMENT>>

Read your telecommunications software instruction sheets on using the capture buffer and printing. If you don't have them, just ask.

<<CAPTURING AND PRINTING TEXT:>>
You need to know how to capture text from Big Sky Telegraph and to print it out at your location. Reading offline at your leisure is better, and cheaper, than reading while on the phone. All communications software programs allow you to capture or record text from the screen for printing or saving to a data disk. Read in your class packet or software manual for the specifics on how YOUR software program does this. A few simple steps, after you hang up, may be all you need to print out the entire text of your call. Typically, there is a command to turn your capture buffer on and off. Other commands allow you to save the captured text on a formatted data disk for reading or printing after hanging up. You may need to tell your software what kind of printer and printer card you have, too.

Before continuing, you should now be able to capture or record any text from Big Sky Telegraph and print it out for leisure reading at your location. This can be used to great advantage for a busy professional, as you'll soon see. TRY IT NOW!

<<SKILLBUILDERS>>

A. In the Crossroads Bulletins menu you'll find a frequently updated bulletin called "TrailBlazers" which lists our primary online community members. Capture it, print it, and read it. This is a very important step, BE SURE to ask questions if you can't get this to work.

B. Introduce yourself in a message to your online tutor, if you've requested and been assigned one.

<<SELF QUIZ>>

1. Have you mastered printing captured material? If not, let Frank know and we'll get you printing in a hurry. You MUST be able to capture and print text to continue the lessons!

2. Did you check the New messages in your class's conference when you called in to work on this second lesson?

3. Can you now save whatever text you want from the screen to the data disk of your choice?

<<HOMEWORK REQUIRED FOR CREDIT>>

1. Tell me in a message the name of an interesting resource person and if you're ready to be listed as one yourself. Resource persons are listed in the TrailBlazers bulletin.

2. Message me on your success capturing, saving, and printing text. If you are having problems: Call me on the 800 voiceline to discuss your printer test. It would help to have the computer near the phone so I can talk you through some steps.

<<NEXT LESSON:>>

1. Learn how to order copyrighted software from Telegraph's software preview loan library.

2. Learn how to order public domain software, videotapes and science kits.

3. You'll take the Big Sky Telegraph walking tour.

Keep loggin' on!

<<Lesson3: Conferencing and Sharing Resources>>

<<LECTURE: CAPTURING CONFERENCE MESSAGES QUICKLY:>>

The most efficient way to keep up on new messages in a given conference is to capture all new messages without stopping. With all new messages in your capture buffer, you can hang up and either read them on the computer, save them, or print them out. Either way, reading offline is cheaper, and less hurried, than reading while on the phone.

This will be important once you finish your online training and go back to paying for your own online calls. One twenty minute call per week will be all you'll need to maintain a flow of resources and to keep up on the new messages. One online call per week could save you hours per week in lesson preparation.

Here's how to continuously capture message lists:
1. Go to the conference where you want to read the new messages
2. Select R)ead
3. Select N)ew Messages
4. After reading the first message SELECT C)ontinuous read.
   ALL New messages in the present conference will be displayed without stopping for convenient capturing.
   Control K will return you to the conference menu at anytime.

<<USING THE CONFERENCES:>>
The conferences are like group chain letters or the bulletin board at the supermarket. Public messages are posted for all to read and respond to. You are encouraged to keep up with ALL NEW messages in the conferences you're interested in. Be sure to keep up on the new messages in your class conference EVERYTIME you call while taking the online class. Private messages can only be read by the intended recipient, (watch your spelling of names.)

There are 12 conferences dedicated to information exchange on different topics. A PrivateMail conference has been created for private messages to avoid clutter in the other conferences with messages most people can't read.

When you first enter a conference the numbers of messages to and from you are listed. An "*" after the message number means that it's a private message. To go to a different conference, select A)nother Conference for the conference list and pick the one you want. Instead of listing ALL conferences everytime you want to change to a different conference, you can type an "a", and the number of the conference. Ex. a2 will put you in the Schoolroom conference, a1 puts you in the CoffeeShop conference, and so on.

After selecting S)can, you enter the number of the message where you want to start scanning (or just a 1, if you don't know where to begin.) Typing a control K will instantly return you to the menu. If you want to read only the more recent messages, just select R)ead and the number of the message you'd like to read first. After each message you'll be given the option of moving in a F)orward direction in the message list or in a R)everse direction. Q)uit puts you back at the conference menu.

<<MESSAGING TIPS:>>
To reply to a given message, you can select M)essage Reply and your response will be automatically addressed to the sender. Use S)can or R)ead to verify your message was sent properly.

If you want to delete the message you are responding to, (as you would a private message to you that you don't need to keep), select K)ill a message. This helps avoid unnecessary clutter in the conferences. If you don't know which message is about to be deleted, select the "* Reread a message" option to preview the message before deleting it. You can delete any message TO you, or FROM you, at anytime.

Experiment with the other message menu options. L)ist will list out your message. You can D)elete a line by number. You can E)dit a line by number too. To edit you must type the part of the specified line you want to edit (old text), and then type in what you want to replace it with (new text.) If you want to redo a message you've already started select Q)uit and start over. Experiment with the different options until you're comfortable.

The remaining lessons and reading assignments are in the Class files area. You'll need to capture them using the techniques you've recently mastered. Select F)iles from the Main Menu for a list of the files areas. Select the Class files area, then select F)iles again to see the listing (control K will return you to the menu.) Select D)ownload, enter the exact filename, and select the T)ype out option. Have your capture buffer ready to capture the text as it scrolls up the screen.

<<READING ASSIGNMENT>>
Read the descriptions of the files in several other files areas to appreciate the volume and diversity of Telegraph's online files. Read a few that interest you. Can you contribute any interesting files, or lessonplans? Please?!

<<SOFTWARE PREVIEW LOAN LIBRARY>>
Let's learn how to order software. This same system can be used for dissemination of any resources available statewide, including instructional videotapes.

See the Resource files area for listing of our software and other resources. To request resources, you would leave a message for Regina Odasz, your Telegraph Resource Coordinator, and request up to THREE software packages or resource items. She'll send them right out if they are available. You have two weeks to enjoy them before trading them for your next batch. Thus begins the flow of resources to your school or business.

IBM users should note that we have the complete PC Special Interest Group's public domain library on CDROM disks for free dissemination. Ask for a listing. Many Apple public domain programs are also available. Send blank disks and we'll make copies for you.

<<SKILLBUILDERS>>

1. Read and follow along on the WalkingTour (see Bulletins menu.) Let your fingers do the walking.

2. Capture all New messages using the C)ontinuous feature in a single conference, hang up and read them offline.

3. Go to a different conference and read a variety of public messages. The more messages you read, the better you'll understand how many different ways Telegraph can be used to share information. Don't hesitate to leave a few too.

<<HOMEWORK REQUIRED FOR CREDIT>>

1. Request three software packages from Regina Odasz, our resource coordinator. See the Software listing in the R)esources files area, see F)iles option off the Main Menu. If you don't really want the software, but DO want to get credit for your homework, tell Regina the request is just your homework assignment and not to send the software.

2. Go to Main Street and find out who the director of the Dillon Women's Center is, AND of the Big Sky Community Clinic. Tell me (Frank Odasz) who they are in a private message. To get to Main Street, select A)ccess from the Main Menu, and then #1. Main.Street.

<<SELF QUIZ>>

1. Can you edit a mistake when entering a message online and use quit to start a message over?

2. Did you try each of the different options that appear after finishing a message? You should know what each option does.

3. Can you find your way around the Main Menu AND Main Street? Making mental maps takes a little practice (noodling.)

4. Can you delete (Kill) your old messages to keep your personal mailbox tidy? Public messages that contain information potentially helpful to others can be left online.

5. Can you change conferences, read NEW messages, and return to your "home" conference?

<<NEXT LESSON>>

1. We'll learn about wordprocessing and what new opportunities are available with telecommunicating.

ONLINE BBS LOGBOOK

NUMBER CALLED	DATE	TIME		SYSTEM NAME	TYPE	PASSWORD	ADDRESS CODE	SYSOP	HOURS	ON-LINE ACTIVITIES, COMMENTS
		LOG-ON	LOG-OFF							

NUMBER CALLED	DATE	TIME		SYSTEM NAME	TYPE	PASSWORD	ADDRESS CODE	SYSOP	HOURS	ON-LINE ACTIVITIES, COMMENTS
		LOG-ON	LOG-OFF							

SUGGESTED READINGS

"Advanced Telecommunications for Economic Development in Washington State." A working paper on the role of online systems for economic development. Send a request to John Niles, Global Telematics, 322 NW 74th St., Seattle, WA 98117-4931, 206-782-6759; or MCI Mail to 205-8483.

Boardwatch Magazine, Electronic BBS and On-line Information Services, 5970 South Vivian Street, Littleton, Colorado, 80127, 303-973-6038

Buckner, Janice. "Distance Learning," HECN Microcomputer Consultant,1987. A paper on the colleges and universities already teaching online courses. Bibliography included. Contact Frank Odasz, Big Sky Telegraph.

Community talent databases concept outline and work-at-home books ($10 or less) are available from Fleming, LTD, P.O.Box 1738, Davis, CA 95617-1738.

Dominick, Douglas, et al. Electronic Citizenship. 1988. Write to Bob Deward, Pacific Bell, PacBell 140, New Montgomery St. #1204, San Francisco, CA 94105.

Epler, Doris M. Online Searching goes to School, Oryx Press 2214 North Central at Encanto, Phoenix, AZ, 85004-1483 ISBN 0-89774-546-9.

Glossbrenner, Alfred. How to Look it Up Online.

Hearing on Rural Economy and Family Farming of the Committee on Small Business, U.S. Senate. Big Sky Telegraph supported two rural telecommunications access bills. For sale by the Superintendent of Documents, Congressional Sales Office, U.S. Government Printing Office, Washington, DC 20402.

Parker, Edwin, et al. Rural America in the Information Age. Lanham, MD: Aspen Inst. & U P of Am., 1989. ISBN: 0-8191-7494.